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Alberta Patient Classification System for Long Term Care Facilities

Final Report

January, 1988

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Alberta Hospitals and Medical Care
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Policy Analysis and Development Unit
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11010 - 101 Street
Edmonton, Alberta
T5J 2P4

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STUDY TEAM

Joyce Semradek, M.S.N., R.N., Principal Investigator
Associate Professor
The Oregon Health Sciences University
School of Nursing

Phyllis Giovannetti, Sc.D., Co-Investigator
Professor
University of Alberta
Faculty of Nursing

Mark Hornbrook, Ph.D., Co-Investigator
Associate Professor
The Oregon Health Sciences University
School of Nursing, and
Senior Investigator,
Kaiser Center for Health Research

Darlene McKenzie, Ph.D., R.N., Co-Investigator
Assistant Professor
The Oregon Health Sciences University
School of Nursing

Susan Will, M.S.N., R.N., Co-Investigator
Associate Professor
The Oregon Health Sciences University
School of Nursing

Jane Buchan, M.S.N., Research Associate
University of Alberta
Faculty of Nursing

Cecelia Capuzzi, Ph.D., R.N., Research Associate
The Oregon Health Sciences University
School of Nursing

Kate Brennan, R.N., B.S., Research Assistant
June Jahn, R.N., Research Assistant
Deborah Lieber, R.N., M.S., Research Assistant

PATIENT CLASSIFICATION STEERING COMMITTEE

Alberta Hospitals and Medical Care

Dr. Cathy Charles (Chairperson), Manager
Policy Analysis and Development Unit
Research & Strategic Planning Branch
March 1985 -

Vivien Lai, Director
Research & Strategic Planning Branch
March 1985 -

M. (Scotty) Lamb, Director
Institutional Operations Branch
March 1985 -

Joe Simon, Director
Financial Planning & Control Branch
March 1985 -

Derek Beckley, Director
Provincial Programs Branch
March 1985 - August 1986

Evelyn Dragojevich (replaced D. Beckley), General Manager
Nursing Home Operations Section
Provincial Programs Branch
August 1986 -

Dr. Don Orn, General Manager
Long Term Care Section
Provincial Programs Branch
March 1985 - September 1986

Geri Watson (replaced D. Orn), Acting General Manager
Long Term Care Section
Provincial Programs Branch
September 1986 -

Margaret Duke (Secretariat), Research Officer
Research & Strategic Planning Branch
March 1985 - August 1986

Corinne Schalm (replaced M. Duke as Secretariat),
Policy Analyst
Research & Strategic Planning Branch
September 1986 -

PANEL OF EXPERTS

Marlene Raasok (Chairperson),
Administrator
Cross Bow Auxiliary Hospital,
Calgary

Linda McGeough, Administrator and
Director of Nursing
Extendicare Alberta,
Lethbridge

Rosemary Hohn, Director of
Patient Care Services
Millwoods Shepherd's Care Centre,
Edmonton

Berniece Malone, Director of
Rehabilitation Services
Grandview Extended Care Centre,
Edmonton

Joyce Johnson, Director of Nursing
Lynnwood Extended Care Centre,
Edmonton

Gordon Johnson, Manager of Pharmacy Services
Carewest,
Calgary

Dr. David Skelton, Professor
Faculty of Medicine,
University of Alberta

Brian Elder, Head Nurse
Psychogeriatric Assessment/Admission
Unit, Alberta Hospital,
Ponoka

Lynne Theriault, Patient Care Services
Consultant, Central Alberta
Institutional Operations Branch
Department of Hospitals and Medical Care

Elaine Macleod, Rehabilitation Manager
Provincial Programs Branch
Department of Hospitals and Medical Care

Dr. John Sunley, Medical Director
Archer Memorial Hospital,
Lamont

Sandra Hunter, Supervisor
Occupational Therapy,
Sarcee Auxiliary Hospital & Nursing Home,
Calgary

Dr. Cathy Charles (Secretariat), Manager
Policy Analysis and Development Unit
Research and Strategic Planning Branch
Department of Hospitals and Medical Care

Margaret Duke (Secretariat),
Research Officer
Research and Strategic Planning Branch
Department of Hospitals and Medical Care
June 1985 - August 1986

Corinne Schalm, Policy Analyst
(replaced M. Duke as Secretariat)
Research and Strategic Planning Branch
Department of Hospitals and Medical Care
September 1986 -

PATIENT CLASSIFICATION ADVISORY COMMITTEE

Dr. Cathy Charles (Chairperson), Manager
Policy Analysis & Development Unit
Research & Strategic Planning Branch
Hospitals and Medical Care
June 1985 -

Bev Jaap, Patient Care Consultant
Provincial Programs Branch
Hospitals and Medical Care
June 1985 -

Elaine Macleod, Rehabilitation Manager
Provincial Programs Branch
Hospitals and Medical Care
June 1985 -

Lorraine McCullagh, Team Manager
Institutional Operations Branch
Hospitals and Medical Care
June 1985 -

Daphne Daniels, Patient Care Services Consultant
Institutional Operations Branch
Hospitals and Medical Care
June 1985 - September 1986

Paula Moncrieff (replaced D. Daniels),
Patient Care Services Consultant
Institutional Operations Branch
Hospitals and Medical Care
September 1986 -

Rich Bayly, Financial Analyst
Provincial Programs Branch
Hospitals and Medical Care
June 1985 - November 1986

Rulon Meldrum (replaced R. Bayly),
Manager, Financial Review Section
Provincial Programs Branch
Hospitals and Medical Care
November 1986 -

Dr. J. McCourt, Director
Professional Services Branch
Hospitals and Medical Care
June 1985 - May 1987

Dr. J. Loera (replaced Dr. J. McCourt),
Medical Director
Hospitals and Medical Care
May 1987 -

George Hennig, President
Good Samaritan Society
Alberta Hospital Association
June 1985 -

Chalmers Whitelaw, Executive Director
Alberta Long Term Care Association
June 1985 - September 1986

Greg Ulveland (replaced C. Whitelaw)
President, Qualicare Health Services Corporation
Alberta Long Term Care Association
September 1986 -

Jean Schmidt, Long Term Care Planner
Social Services & Community Health
June 1985 - September 1985

B. Richardson (replaced J. Schmidt),
Director, Rehabilitation Programs
Social Services & Community Health
September 1985 - May 1986

V. Smith (replaced B. Richardson),
Long Term Care Planner
Community & Occupational Health
May 1986 - April 1987

S. Weatherill (replaced V. Smith),
Long Term Care Planner
Community & Occupational Health
May 1987 -

Margaret Duke (Secretariat),
Research Officer
Research & Strategic Planning Branch
Hospitals and Medical Care
June 1985 - August 1986

Corinne Schalm (replaced M. Duke as Secretariat),
Policy Analyst
Research & Strategic Planning Branch
Hospitals and Medical Care
September 1986 -

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I. INTRODUCTION

A. Background of the Project

The Patient Classification Project is part of a larger plan to improve long term care in Alberta. The project grew out of recommendations made by the Alberta Nursing Home Review Panel after completion of a comprehensive study of nursing homes. The Panel's report (known as the Hyde Report) included 43 recommendations for improving long term care services in nursing homes and auxiliary hospitals in the province. One of the Panel's priority recommendations was the implementation of a province-wide patient classification system that would provide the basis for funding nursing homes and auxiliary hospitals. This recommendation was based on a desire to make the funding of these facilities more equitable. A patient classification system was also viewed as necessary for the integration of patient types in nursing homes and auxiliary hospitals — another recommendation of the report.

As a result of this report, the Nursing Home Liaison Committee was formed with representation from the Department of Hospitals and Medical Care, the former Department of Social Services and Community Health, the nursing home sector (specifically the Alberta Hospital Association and the Alberta Long Term Care Association), the Alberta Medical Association, and the Alberta Association of Registered Nurses. After a review of Patient Classification Tools currently in use, the Nursing Home Liaison Committee concluded that the existing tools were not appropriate for use in Alberta's nursing homes and auxiliary hospitals and recommended that the province develop its own long term care classification tool. A Patient Classification Steering Committee was appointed in March 1985 and a Request for Proposals was distributed in June 1985. The Oregon Health Sciences University, School of Nursing, subcontracting with the University of Alberta, Faculty of Nursing, was awarded the contract and work began in December 1985.

B. The Purpose and Scope of the Classification System

The purposes of the classification system are twofold: (1) to provide a means of grouping nursing home and auxiliary hospital residents/patients according to their care requirements and (2) to provide case-mix data which can be used as the basis for funding patient care services in nursing homes and auxiliary hospitals. Classification data may also be useful for policy and planning purposes. In addition the data may be used on a voluntary basis by facilities for determining workload and staffing. However, the classification system is not intended to be used in care planning nor to determine staffing resources other than nursing and rehabilitation.

The patient classification system is designed to include *all* nursing home and auxiliary hospital patients, including groups with special needs, such as the young physically handicapped and the mentally dysfunctional elderly, as well as patients requiring assistance with activities of daily living. At a minimum, the categories are intended to predict nursing care requirements and in time, also to address the rehabilitation care requirements of the patients in these facilities. The classification of all patients in nursing homes and auxiliary hospitals makes possible the calculation of funding for the patient care component for these facilities based on case-mix. After patients are classified into a category reflecting care requirements, the proportion of patients per category in each facility will be used to determine the case-mix for the facility. Case-mix will then be available for use in the formula for funding the patient care component of each facility. Changes in case-mix of a facility may occur due to changes in patient status, admissions and discharges. Periodic review and reclassification according to the standardized classification system will allow ongoing adjustments in order to maintain equitable funding — the outcome envisioned by the Nursing Home Review Panel.

C. Project Management Structure

The project was carried out by the study team under the direction of the Patient Classification Steering Committee and with the assistance of the Advisory Committee and the Panel of Experts. The roles, responsibilities and composition of each of these groups are described below.

The Steering Committee was composed of staff of the Department of Hospitals and Medical Care, including the directors of the four branches involved in the project: Institutional Operations, Provincial Programs, Financial Planning and Control, and Research and Strategic Planning (see membership list). The Steering Committee was responsible for the overall direction and management of the project. The Committee reviewed the proposals from consulting firms and selected faculty from The Oregon Health Sciences University School of Nursing to develop the Patient Classification Tool. The Steering Committee provided ongoing direction to the study team, and reviewed and approved the study team's reports.

The Advisory Committee was composed of clinical staff from the Departments of Hospital and Medical Care and Community and Occupational Health, one representative from the Alberta Hospital Association and one from the Alberta Long Term Care Association (see membership list). The Advisory Committee acted as a technical advisory group to the Steering Committee, assisting in the initial review and evaluation of proposals from consulting firms, in the selection of the study team, and reviewing reports prepared by the study team. In addition, the Advisory Committee reflected field interests and concerns.

The Panel of Experts was composed of clinicians chosen because of their clinical expertise in the areas covered by the Patient Classification Tool and their knowledge of long term care residents/patients. The members of the Panel were primarily from auxiliary hospitals and nursing homes in the province. Five were nurses, including a nurse consultant from the Department of Hospitals and Medical Care, three directors of nursing service, and a nurse specializing in psychogeriatrics. Three Panel members were rehabilitation personnel, including an occupational therapist, a physical therapist, and a rehabilitation consultant from the Department of Hospitals and Medical Care. Two individuals on the Panel were physicians, including a specialist in geriatric medicine and a rural family physician with an interest in long term care; one was a pharmacist. The chairperson, who was also from the field, was the administrator of an auxiliary hospital. (See membership list.)

The Panel of Experts provided assistance in the conceptualization of the Patient Classification Tool, the selection of the indicators and the definition of the classification categories. The Panel provided clinical judgments and made recommendations to the study team and Steering Committee throughout the development of the Classification Tool. Their input helped establish the validity of the classification categories and the category weights.

The study team was responsible for the conceptual development of a patient classification scheme for long term care, the empirical evaluation of the classification system, and the development of a training program and plan for province-wide implementation of the system. The study team represented a wide range of research and clinical expertise and was organized to use the special knowledge and experience the members brought to the team. Through staff meetings all members of the team contributed to the design and conduct of each component of the study. In addition, each assumed responsibility for the completion of particular activities as follows. Joyce Semradek, Principal Investigator, had overall responsibility for the scientific conduct of the project. She was responsible for the conceptual development of the patient classification scheme and for overseeing the data analysis. Phyllis Giovannetti was responsible for directing the Canadian-based activities. Assisted by Jane Buchan, she supervised the Provider Activity Study and the collection of data at the sample facilities. Jane Buchan developed the training procedures for facility staff. Susan Will and Cecelia Capuzzi were responsible for planning and conducting the training program for the data collectors. Darlene McKenzie was responsible for the reliability analyses. In addition Darlene McKenzie and Susan Will, Principal Investigator and Co-principal Investigator of the Long Term Care Assessment Tool Development Project, provided a link between that project and the Patient Classification Project. Mark Hornbrook was respon-sible for analyzing the predictive validity of the case-mix system and the potential impact of the system.

In the initial stage of the project the study team conferred with four external consultants:

Christine E. Bishop, Ph.D.
Senior Research Associate
Center for Health Policy Analysis and Research
Brandeis University

Myrna J. Hall, M.S.
Manager, Health Care and Social Services
Ernst and Whinney Management Consultants

Eugene Levine, Ph.D.
Research Consultant

Donald P. Schneider, Ph.D.
Associate Professor
Management and Information Sciences
Rensselaer Polytechnic Institute

These consultants reviewed the first draft of the *a priori* conceptualization and provided comments to the study team.

D. Overview of the Project

The development of the patient classification system included three distinct, though interrelated sets of activities:

1. the conceptual development of the classification categories,
2. empirical evaluation of the categories, and
3. recommendations for implementation that will ensure the continued validity of the system.

Although conceptualization initially preceded the collection of patient and provider data, the development of the categories was based on an iterative process involving statistical analysis, clinician review and reconceptualization. The process was repeated until the classification scheme met the criteria established by the study team, Panel of Experts, and Steering and Advisory Committees.

The remainder of this report is organized into four major sections describing the development of the classification system. Section II reviews the criteria for a long term care classification system and presents the rationale for the approach used in the development of the Alberta system; it describes the classification variables used, the measurement of resource use adopted, and the design of the Provider Activity Study which provided data for the development of the classification categories. Finally, it includes a discussion of the reliability of the classification data.

Sections III and IV present the Alberta Patient Classification System for Long Term Care Facilities. Section III reviews the analysis that contributed to the development of the classification system, the classification categories themselves and the properties of the nursing case-mix classification system. Part IV discusses the alternative methods of incorporating rehabilitation into the case-mix classification system.

A final section (Section V) gives recommendations for implementation, including recommended changes in the Patient Classification Form and user manual, recommendations for evaluation of reliability during implementation, and a plan for ongoing validation and revision of the classification system. Appendices include both the original and revised Patient Classification Form and user manual, data collection forms and manuals, methodological notes and tables, and a glossary of terms used in this report.

II. METHODS

A. Development of the Categories

Criteria for a Long Term Care Classification System

Three sets of criteria provide the standard for evaluating the performance of a long term care classification system: methodological, clinical, and administrative. Each of these played an important role in guiding the development of the Alberta long term care classification system including selection of the approach to be used. Taken together, the criteria describe an ideal classification system for long term care.

First, to be methodologically sound, categories should be *mutually exclusive, collectively exhaustive, reliable, valid* and *sufficient in number* to explain variation in the variable being measured while at the same time producing categories that are *homogeneous*. That is, every patient should fit into one and only one category, a patient should be placed in the same category by different raters, the categories should capture real differences, and patients within each category should be similar with regard to care needs.

Further, patient attributes should be measured as objectively as possible. Valid and reliable indicators should be developed, and reliance on professional judgment for assessment of the attributes minimized. The danger of exclusive reliance on professional judgment for assessing individual patients is that providers may decide what levels of care patients should have, and then manipulate the health status rating to justify those levels. With more explicit, i.e., objective measures, the resource coefficients that are assigned to the various levels of need can be more independent of professional judgment of the provider actually delivering care. Patient categories should also be generalizable over both time and place, so that, regardless of idiosyncratic features of individual components of the long term care system (such as geographic location, size, or ownership of institution, for example), patient categories remain stable.

Second, to meet the clinical criteria, categories should be appropriate in content for long term care patients. Specifically, they should distinguish groups of patients who have clusters of problems seen in practice, whose needs for care differ, and whose needs, taken as a group, are clinically meaningful. That is, patients classified in the same group should have similar clinical characteristics and similar needs for care. The clustering of needs should make sense to the providers of care, allowing them to organize their care around those needs. (This means, of course, that a particular classification system cannot be fixed for all time: even the perfect classification scheme should be revised to reflect advances in the methods of producing and delivering long term care.)

A classification system should be based on the clinical criteria that determine the demand for services, not on the types of services actually provided. This allows the classification system to be independent of inefficiencies in particular institutions or of individual variation in patterns of practice among providers. That is, a patient should be classified as a “heavy care” case only if there are clinical indicators of need for heavy care, not simply because a particular nursing home is providing that level of care to the patient. By the same token, a patient requiring “heavy care” should not be classified as “medium care” because that is all the nursing home can afford. The diagnostic, functional, psychological, social, and prognostic attributes of the patient, which describe the reasons for use of the health care system, should be the basis of a patient classification system. These dimensions define the nature of the problem whose resolution through appropriate care will provide satisfaction to the patient.

In addition to the general methodological criteria and the specific clinical criteria, administrative criteria are important if the classification system is to be useful as an administrative tool. To meet administrative criteria, categories should be easy and economical to use, and they should be readily adaptable to changes in long term care methods and delivery systems.

Ideally, a system will have a reasonably small, manageable number of classes into which patients can be categorized, and also retain acceptable homogeneity of resource use and clinical character. This represents a trade-off because homogeneity can be obtained by defining a large number of narrowly focused classes. Finally, the ideal patient classification system will be flexible and adaptable. That is, changes in public policy, patient characteristics or other significant variables can be incorporated into the classification system, without destroying the underlying conceptual base and integrity of the system.

Approach Used in Developing the System

Two approaches commonly used in the development of patient classification systems are (1) the *a priori* approach, in which patient categories are defined by conceptual specification, and (2) the statistical approach, in which patient categories are defined by statistical procedures. The approach selected for the Alberta Patient Classification Project was a combination of the conceptual (*a priori*) and the empirical (statistical) approaches. An approach that captured the best features of both of these approaches was deemed most likely to produce a classification system that optimized attainment of the various methodological, clinical and administrative criteria.

To preserve the advantages of the *a priori* system, the study team and Expert Panel first conceptualized the categories by:

1 defining types or domains of care required by long term care patients;

2 selecting patient attributes that indicate a need for each type of care;

3 combining the indicators to obtain measures of the level of care required;

4 combining level of care measures to obtain categories.

To guard against some of the deficiencies of the purely conceptual approach, an empirical component was designed. The design included:

1 selection of a resource use measure;

2 collection of data on classification variables (patient attributes) and resource use; and

3 analysis of the data to determine which indicators, levels of care measures and categories best met the established criteria.

These data provided the basis for reconceptualizing the classification system, making decisions about inclusion and exclusion of domains and indicators, and defining level of care measures and classification categories. To provide adequate data, the design addressed problems related to the measurement of patient needs and resource use.

Problems Related to the Measurement of Patient Needs. Ideally, the variables used to classify patients should be attributes of *patients* that contribute to their needs for long term care services. Often, however, it is easier to measure the actual utilization of services or the capacity of a facility to provide a service. The inclusion of utilization patterns in classifying patients creates logical problems since it by definition incorporates resource use. Without an independent measure of resource need, the efficiency of services actually provided cannot be evaluated. That is, if the provision of service is the basis for classification, there is no opportunity to evaluate whether or not patients with certain care requirements are given unnecessary services (excess costs) or denied necessary services (inadequate output). The classification variables, as a set, should represent the full range of care patients require. Use of structural attributes of the long term care system or the observed behavior of the providers to measure output creates a tautology — patients need more services because they are using more services.

Problems Related to the Measurement of Resource Use. The measure of resource use should be consistent with the intended purpose of the classification scheme. Two common purposes of classification systems are (1) to determine staffing, and (2) to develop reimbursement formulas. Basing the resource use measure on care actually provided by nursing staff is obviously appropriate for determining nurse staffing levels. However, if the system is to be used for funding, a measure based only on nursing staff time may be inadequate unless the allocation of all other costs is highly correlated with the allocation of nursing staff time. Unfortunately, this assumption does not always hold. Schneider and Fries (1984), in developing a patient classification system for New York State, for example, found that time of other professionals was inversely correlated with nursing staff time. A more comprehensive measure, if the system is to be used to determine reimbursement for total costs, would include time of other providers as well as measures of other resources, such as laundry and pharmacy, that contribute to total costs.

A second problem to be considered is whether only direct care items reflecting time spent with the patient are included or whether other activities related to the patient's care are also included. Excluding activities undertaken on behalf of the patient, for example, assumes that variations in staffing are totally determined by variations in the direct care associated with different categories. To put it another way, it is assumed that indirect care is proportional to direct care across categories and that persons with different direct care needs do not consume disproportionately different amounts of staff time for indirect care activities. This assumption should be checked empirically before a decision is made. In addition, the measure should take into consideration substitutes for direct care, such as care provided by family and friends or by contract with outside providers, that may distort observed patterns of use of nursing services across patients.

A third problem in the selection of the resource use measure is its relationship to *actual* versus *ideal* utilization patterns. Although the statistical approach can be used with either, all of the measures developed to date have been based on actual practice. A resulting problem is that the classification scheme thus derived builds in the inefficiencies that exist in current practice since the data capture variations that go beyond case-mix to include those due to variability in qualifications, availability and competence of providers. In some cases this problem has been somewhat mitigated by using only those institutions providing a high standard of care.

B. Classification Variables

Care Requirement Domains

Three types of problems determine the care required by long term care patients: functional problems, medical problems and environmental problems. The three are not independent: medical conditions and environmental factors cause or contribute to functional problems. However, the different types of problems do produce different care requirements. From the three problem areas, five types or domains of care were identified as capturing the range of care required by patients in long term care facilities in the province of Alberta: Activities of Daily Living and Behaviors of Daily Living, representing functional problems; Continuing Care Level and Therapeutic Interventions and Programs related to medical problems; and finally, External Demands representing environmental problems (see Figure 1).

One early decision made by the study team and supported by the Expert Panel was to use the care required by a patient because of his or her functional status as the basis for classification. Functional status was defined as the ability to perform activities of daily living and ability to cope with the demands of daily living without harming self or others. Assistance with activities of daily living (ADLs) needs no justification for inclusion in the classification system in that it is a major reason why patients are in long term care facilities; that is, needs for assistance with the activities of daily living form a large part of the care required by patients in long term care facilities. The second set of functional problems, labelled behaviors of daily living (BDLs), is well recognized by clinicians as another major reason for placing patients in long term care facilities and one determinant of the amount of care they require. However, unlike the activities of daily living, behaviors have less frequently been included in classification systems and those that have been included have played a minimal role in distinguishing variations in levels of care.

Unlike the two functional problem domains, which include activities the patient would ordinarily do for himself if he were able, medical problems may produce two other domains or types of care that patients require: continuing care (CCL) and therapeutic interventions and programs (TIPs). Interventions in the continuing care domain reflect medically determined, ongoing care that patients will probably require for the remainder of their lives. In contrast therapeutic interventions and programs include those treatments intended to bring about change in patient status (though they may or may not be successful in doing so). Unlike the functional domains, these two domains focus on the type of intervention required rather than on the type of patient behavior stimulating the need for care.

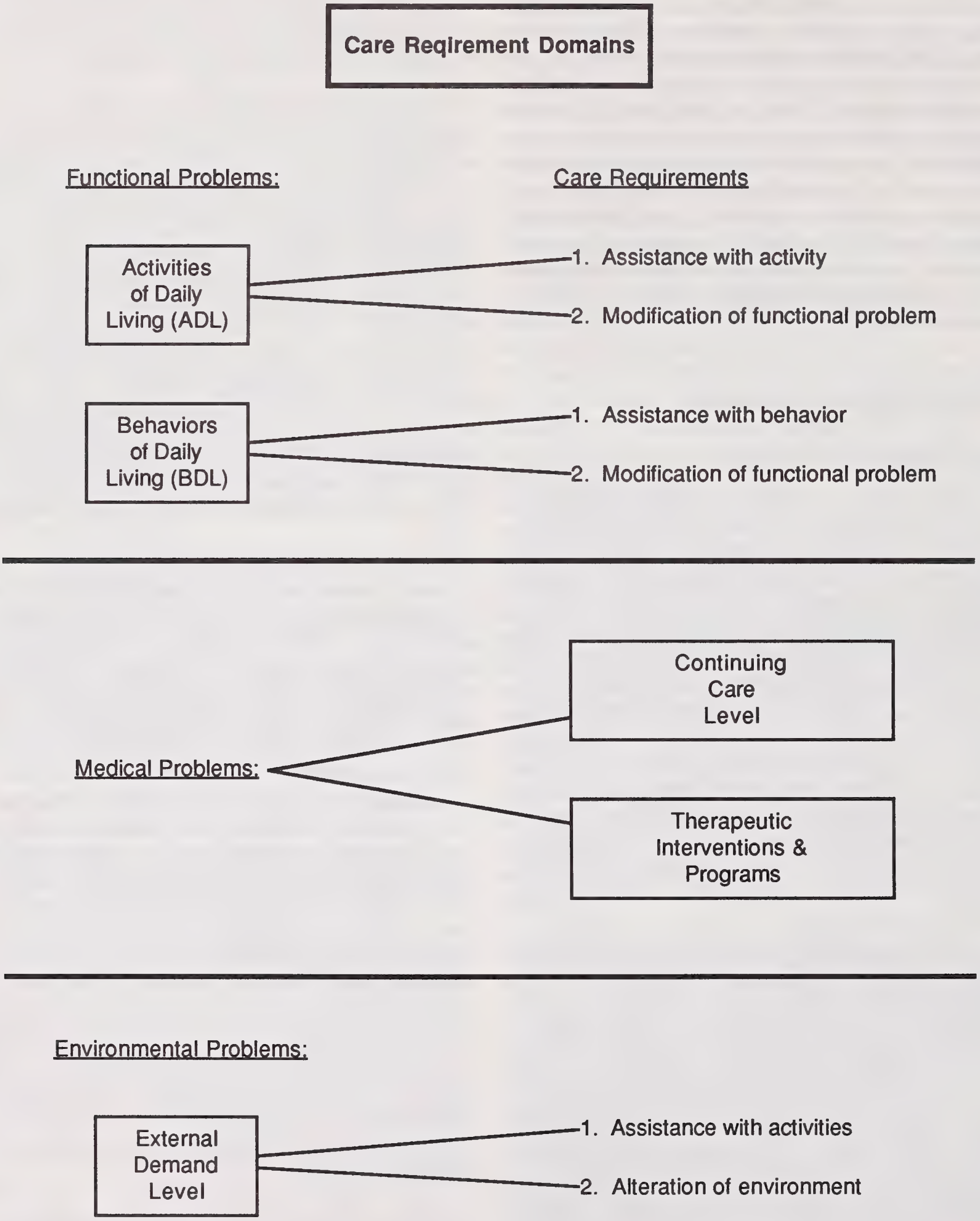
A third set of problems that increase or alter the care requirements of patients or alter their level of dependency are created by the patient's environment. That is, there are factors in the patient's physical and non-physical environment that determine or alter his ability to care for himself and therefore alter the care he requires from staff. The fifth domain includes these factors, labelled External Demands.

These five domains, then, reflect the major types of care required by long term care patients, with functional problems which prevent independent living being the primary reason why patients are admitted to long term care facilities. Classification variables from each of the five areas were considered for the development of the categories. Although both medical problems and environmental factors are likely to be reflected in functional deficits, they were included in order to ensure that the classification system did not overlook any items found relevant either by other investigators developing classification systems or by providers of long term care. The specific variables included are described below.

Patient Attributes: The Patient Review Form.

The Patient Review Form (PRF) was developed for the Alberta Long Term Care Patient Classification Project. Patient data to be tested for use as classification variables (indicators of care requirements) were recorded on the PRF during the Provider Activity Study. A revised version of the

Figure 1


Care Reqirement Domains
Functional Problems:
Care Requirements
Activities of Daily Living (ADL)
1. Assistance with activity
2. Modification of functional problem
Behaviors of Daily Living (BDL)
1. Assistance with behavior
2. Modification of functional problem
Medical Problems:
Continuing Care Level
Therapeutic Interventions & Programs
Environmental Problems:
External Demand Level
1. Assistance with activities
2. Alteration of environment

form (the Patient Classification Form) is recommended for use as the data collection form for the Alberta Patient Classification System for Long Term Care Facilities. (See Section V for a description of the changes and Appendix E for a copy of the final form.) The PRF contained 105 items divided into seven major sections: 1) Background Data, 2) Health Status, 3) Activities of Daily Living, 4) Behaviors of Daily Living, 5) Continuing Care, 6) Therapeutic Interventions and Programs, and 7) External Demand. In addition to items from the five domains, background data and health status indicators were added to provide a means of checking the classification variables.

The Background section contained four items: age, sex, marital status and date of admission to the facility. The Health Status section contained thirteen disease categories with space to record the specific ICD-9 codes of diagnoses appearing in the patient's medical record and the duration of the illness. It also included two items listing special programs in which the patient might be participating, two dichotomous items noting the presence of terminal illness and coma, and two items describing orientation and memory.

The Activities of Daily Living (ADL) section included seven items describing eating, dressing, toileting, transferring, grooming, bathing, and mobility. In addition it included two items describing the type of rehabilitation program the patient is receiving for problems with ADLs as well as an item listing the ADL deficit on which the program is focused.

The Behaviors of Daily Living (BDL) section included fifteen items describing behavior that requires care, e.g., wandering, agitation, hoarding, anger. In addition this section included three "care" items designed to describe the frequency of intervention required to address patient behavior associated with the presence of ineffective coping, the potential for injury to self or others, and "other" behavior problems. This section also included rehabilitation items which parallel those in the ADL section.

The Continuing Care section contained items for both urinary incontinence/catheter care and fecal incontinence/ostomy care. In addition it contained a checklist of medications and conditions requiring special monitoring. An item on communication was accompanied by a checklist of sources of the problem.

The Therapeutic Interventions and Programs section contained a checklist of fourteen treatments and programs that are commonly ordered for nursing home and auxiliary hospital residents. Provision was made for writing in others.

The last section, External Demand, was included to address factors which are external to the patient but alter the patient's level of dependency or the care required from the staff. This section contained a single item describing the frequency with which the family either assists the staff by providing patient care or requires additional input from the staff. A copy of the PRF is found in Appendix B. Additional discussion on the instrument can be found in the May 1986 report to the province: *Patient Classification Tool Development Project: Development of the Patient Classification Methodology.*

C. Measurement of Resource Use

A primary objective of the long term care patient classification system developed in this project is to identify groups of patients who require similar mixes and levels of staff resources to meet their nursing and rehabilitation needs. Development of such a system requires a valid measure of resource use. For this project, resource use was measured by the *time* providers spend in direct and indirect patient care activities, weighted by relative wages. Both clinical and methodological considerations determined the choice of the measure. First, the primary resources required to provide therapeutic and maintenance support to long term care patients are nursing and rehabilitation personnel. Moreover, the use of these resources has been observed to vary across patients. That is, use of personnel varies according to the care requirements of long term care patients and varies more widely than other types of resources used by these patients. (Since the focus here was on long term care, hospital and physician services were excluded from consideration.)

Provider Time

The major types of providers whose time was measured were *nursing* personnel (registered nurses, RNs; registered nursing assistants, RNAs; and nurses' aides, NAs), and *rehabilitation* personnel (occupational therapists, OTs; physical therapists, PTs; occupational and physical therapy aides, OTAs, PTAs and PT porters). Recreation therapy time was not included since it did not vary substantially over patients. Measures of resource use were computed from *actual* time spent by providers caring for patients. Both direct (face-to-face) and indirect care activities were included in measuring the time spent since both were found to vary across patient types. Indirect care activities were defined as those tasks specific to an individual patient but not performed in his or her presence. These included such items as charting, family consultation, and coordination with other providers. (Time spent by providers in activities not related to care of a specific patient — such as time ordering supplies, personal time, etc. — was not included.) A detailed description of the methods used to collect the time data is included in Section D, Provider Activity Study.

To allow comparison across providers and summation of individual provider measures into a composite index, staff time was measured in a common unit, relative labor cost weights. Although it might appear that "minutes" are a common unit, a minute of RN time is not equivalent to a minute of aide time since the two represent different levels of training, skill, knowledge, and professional responsibility. These differences are typically reflected in salary levels, so that a minute of RN time is more costly than a minute of aide time. Hence, unweighted provider time is not a consistent measure of resource use. In this study, weighting was done by type of provider (adjusting for length of experience and quality of skill *within discipline* was considered much too complex for this research). Thus, minutes of time were multiplied (weighted) by a relative labor cost index for each provider group (e.g., RN) across all facilities in the sample in order to adjust for the differences embedded in minutes of staff time across type of provider.

Relative labor cost weights were used to adjust provider times to be equivalent to RN time so that these times could be summed within patients to compute the total RN-equivalent labor input per patient. The times were then summed across patients to obtain an average per case type. A minute of RN time was counted as a minute of RN-equivalent time (relative weight = 1.00). Since RNA and aide salaries are lower than RN salaries, their weights were made less than one; thus a minute of RNA time counted less than a minute of RN time.

Labor Cost Weights

In selecting the appropriate labor cost weight for project purposes, the study team considered the implications of using a weight derived from the labor costs of the sample facilities or a weight based on province-wide union wage rates. Table 1 presents the labor cost weights in absolute and relative terms for the sample institutions and for the province. The union labor costs represent the fourth step of the negotiated wage scale for each professional personnel group and the second step for the aides. Although union rates are not used by all facilities, they are widely used throughout the province and are the best province-wide data available. The hourly rates include both the wage rate and all fringe benefits. The sample facility rates were gathered from the financial officers of the participating institutions during the course of the Provider Activity Study. The figures in Table 1 represent the average across facilities of the average labor costs per facility, for all personnel in a given category. Hence, in this calculation each facility's average labor cost rate was given equal weight. This means that small and large facilities received equal weight, despite the fact that the number of personnel in each category is substantially less in small facilities than in the largest facilities. This approach was adopted to avoid swamping the figures by the two largest urban facilities and to obtain a better representation of rural wage costs.

Perusal of the table reveals some interesting differences and similarities among these two approaches. The union rates (1) provide relatively more weight to RNs among the nursing staff, (2) count RNs, PTs, and OTs about the same, (3) count NAs, OTAs, and PTAs the same, and (4) have only 3 steps in discriminating among the various personnel types (High = RN/OT/PT; Medium = RNA; Low = NA/PTA/OTA). One might characterize the union weights as following a *comparable worth* approach to valuation because different types of personnel are explicitly grouped at similar wage-benefit rates.

Rates computed from sample data demonstrate more of a *market-based* approach to valuation because there is a greater degree of discrimination among the various personnel types (6 steps instead of 3). PTs receive nearly a 20% premium over RNs. It should be noted that the sample facilities approach includes the effects of tenure and turnover (PTs have been in the facilities much longer than OTs, on average, for example). Further, because the sample was so small, the unique circumstances of some of the facilities had a marked impact on the resource weights. (Note that the weight assigned to volunteer and family time is the same as nursing aide time for both sets of rates, on the assumption that tasks performed by the volunteer would be those otherwise performed by the aide.)

The union weights were selected for use in computing resource intensity for two reasons: first, the probable instability of the sample weights, in that collection of data on another set of facilities would be likely to produce a much different set of weights; and second, the attractiveness of the

Table 1. Comparison of Hourly Labor Costs and Weights Based on Sample Data and Alberta Hospital Association Wage Rates Derived From Provincial Union Agreements

			Rates Based on Union Agreements in Effect During Data Collection (Sept-Oct 1986)		Rates Based on Provincial Union Agreements Reached After Data Collection (Fall 1986)	
Provider	Sample Rates Average Hourly Rate	Weight	Average Hourly Rate (Level 4, Professional Level 2, Non-professional)	Weight	Average Hourly Rate (Level 4, Professional Level 2, Non-professional)	Weight
RN	17.13	1.0	18.13	1.0	18.22	1.00
RNA	11.98	0.70	12.13	0.67	12.97	0.71
NA	10.61	0.62	11.07	0.61	11.65	0.64
OT	17.20	1.00	18.69	1.03	18.30	1.00
OTA	11.04	0.64	11.07	0.61	11.65	0.64
PT	19.30	1.13	18.69	1.03	18.30	1.00
PTA	11.36	0.66	11.07	0.61	11.65	0.64
Volunteer & Family				(0.61)		(0.64)

comparable worth approach to all participants in long term care. In addition, the purpose of using these measures is to identify the structure of costs for different case-types, not to assess the personnel policies of long term care facilities. The union weights control for the effects of personnel policies in that they reflect differences among the types of long term care personnel at the same relative level of experience (level 4, or, for nonprofessionals, level 2).

The weights used in all analyses presented in this report are based on the wage rates in effect at the time the data were collected (September-October, 1986). Although revised weights were computed on updated wage agreements, these did not differ greatly from the weights used in the original analysis and were therefore not used. (See Table 1.) Sometime in the future, changes in labor costs and in the relative labor cost structure may require recomputation of category weights; this is discussed in the section on implementation, Section V of this report.

Computing Category Weights

The specific steps in computing the resource intensity weight of a given class of patients were as follows:

Step 1: For each personnel type, the labor cost per hour was divided by the RN cost per hour to obtain the relative weight for each type of provider.

$$\text{RN Labor Cost Weight} = \frac{18.13}{18.13} = 1.00$$

This shows that the standard unit measure of labor time is an RN minute (or hour).

$$\text{RNA Labor Cost Weight} = \frac{12.13}{18.13} = 0.67$$

This shows that more than one RNA unit of time is required to be equivalent to one RN unit.

$$\text{NA Labor Cost Weight} = \frac{11.07}{18.13} = 0.61$$

Similar computations were done to produce labor cost weights for OTs, PTs, OTAs, and PTAs (see Table 1).

Step 2: The resource use measure for each provider group (e.g., nursing personnel, OT personnel, etc.) then became the time each provider type spends in minutes, multiplied by the wage ratio for that provider group, summed for all provider types in that group for each patient. That is, provider time was converted to RN-equivalent minutes using the appropriate labor cost weights and summed across providers to obtain a measure of resource use for each patient.

Nursing Resource Use per patient = (Weighted Nursing Time RN-Equivalent Minutes) (RN time X RN cost weight) + (RNA time X RNA cost weight) + (NA time X NA cost weight)

Rehab Resource Use per patient = (Weighted Rehab Time RN-Equivalent Minutes) (OT time X OT cost weight) + (OTA time X OTA cost weight) + (PT time X PT cost weight) + (PTA time X PTA cost weight)

Step 3: The composite resource use measure included the resource use measures for both professional groups (nursing and rehabilitation personnel). The composite measure was computed as follows:

Total Resource Use Measure per patient =

(Weighted Nursing Time) + (Weighted Rehab time)

Step 4: The mean weighted times (nursing, rehabilitation and combined) were then computed for each category of patients by summing the resource use measures and dividing by the number of patients in the category. These category weights represent the relative resource intensity of labor inputs required by patients in each category.

To summarize, measures of the nursing and rehabilitation resources used by each patient were computed by converting all minutes of care to RN-equivalent minutes and summing across provider types. Using the measures a mean resource use measure per category (case-type) was then computed, which became the category weight.

Mean resource use measures (category weights) were computed first for provider groups to allow evaluation of the extent to which categories (case- types) differ in their requirements for different types of resources (for example, in intensity of nursing resource use as compared to intensity of PT-OT resource use). In addition a composite measure was computed to give an overall measure of resource intensity per case. Each of the three measures was used in testing the properties of the categories.

Administrative time, i.e., that time devoted to facility operations rather than the care of specific patients, was omitted because no method could be devised that would allocate this time on other than a fixed per capita basis within each facility. Since the purpose is to address the relative cost structure, fixed costs are irrelevant. Only variable, patient-specific labor costs are included in the resource weights. This approach assumes that all cost variation associated with case-mix variation can be assigned directly to patients and their specific needs for care. Hence, it also assumes that managerial input is proportional to patient care input, i.e. that greater numbers of heavy care patients do not require disproportionately more managerial overhead.

The Expert Panel reviewed the empirical resource intensity data in the process of defining the weights. They accepted the mean times spent by RNs and other nursing personnel as reasonable given the types of patients in the categories. Hence the weights represent a feasible technology — they do not represent an ideal that only the most efficient can achieve. As averages, the normal variability in patterns of efficiency among providers is captured. That is, the experiences of the less well-managed nursing homes is partially offset by the experiences of the best managed facilities. In the future, policy-makers can address whether all facilities ought to be held to the standards set by the most efficient high-quality facilities.

D. Provider Activity Study

The Provider Activity Study was designed to provide data for a variety of analyses that would contribute to the development of the classification system and evaluate the extent to which it met specified criteria. Data were obtained on the clinical characteristics of approximately 1,200 long term care patients and the nursing and rehabilitation resources used by those patients. This section includes a description of (1) sample selection, (2) types of data collected and data collection procedures, (3) selection and training of data supervisors, collectors and facility personnel and (4) quality of the data.

Sample

Criteria for Sample Selection. To test the Patient Classification Tool, a sample of patients from each of the classification categories was required. Since it was not possible to sample from the established categories (prior to development of the scheme), characteristics of facilities were used as proxy variables for the categories to ensure inclusion of patients from the entire spectrum of nursing home and auxiliary hospital patients. A purposive sample of facilities was selected to include representation of the following facility characteristics:

1. location — urban, rural, regional distribution;
2. ownership — district, private, voluntary;
3. type of facility — nursing home, auxiliary hospital, combined facility (nursing home and auxiliary hospital);
4. size of the facility — over 100 beds, under 100 beds;
5. range of long term care patients — (e.g., facilities known to have special programs for young physically handicapped and mentally dysfunctioning elderly patients were included to ensure representation of these patients in the sample).

To facilitate data collection, two other factors were taken into account in selecting the sample: (1) travel time between facilities, and (2) willingness of the facility to participate.

Procedure for Selection. The Patient Classification Steering and Advisory Committees met with the study team to discuss the selection of the facilities for the Provider Activity Study. Using the criteria listed above, Steering and Advisory Committee members recommended nine facilities believed to provide a representative picture of long term care patients in Alberta. Nursing home units in two of the facilities were separated from the auxiliary hospital units for facility-based analysis giving a total of 11 "facilities." The facilities and their characteristics are presented in Table 2. All patients in these facilities at the time of data collection were included in the sample (n = 1270). Sixteen patients were subsequently excluded because of extreme scores on resource utilization data. Visual inspection of the resource utilization data and the patient characteristic data suggested that the extreme scores were a result of either recording errors or the method used to estimate

Table 2. Sample Facilities by Type, Location, Ownership, and Size

FACILITY TYPE	OWNERSHIP	NUMBER OF BEDS	SAMPLE *
Nursing Homes			
Free Standing Homes			
NH #2	District	40	39
NH #3	Private	124	118
NH #4	Private	128	123
NH #5	Voluntary	150	99
NH #6	District	40	40
Nursing Home Units			
NH #1	District	52	52
NH #7	Voluntary	75	71
		609	542
Auxiliary Hospitals			
AH #1	Voluntary	350	337 **
AH #2	District	50	48
AH #3	District	34	33
		434	418
Combined Facilities			
CF #1	District	300	294
Sample Size		1343	1254

*sample represents patients in facilities at the time of the study with 16 outliers removed.

**one auxiliary unit in AH#1 was not included.

missing data when patients were off the unit for part of the data collection time. (See Appendix D, Form F, for a more complete discussion of the way missing data were handled.) The analyses were therefore conducted on a sample of 1254 long term care patients.

Data

Three types of data were collected to use in the development of the classification categories: (1) patient characteristic data, (2) resource utilization data, and (3) facility data. A fourth type of data was collected as a means of monitoring the data collection procedures.

Patient characteristic data. These data were collected using the Patient Review Form (PRF), which incorporates items describing the patient's functional level in terms of activities of daily living and psycho-social behavior, and items describing continuing care requirements for incontinence, medication and other monitoring, therapeutic intervention programs, and family participation in care. Additional data were collected on medical diagnoses and health and mental status. (The PRF is described in detail in the preceding section and is included in Appendix B.) Patient characteristic data were collected by 17 data collectors, on all patients in the participating facilities at the time of data collection.

Resource utilization data. These data were collected on the same sample of patients. They included (a) type of care provided, (b) time spent in providing care, and (c) type of provider (discipline and level of preparation of provider). These data were recorded by facility staff under the supervision of six data collection supervisors.

For three consecutive days, during each shift, nursing and rehabilitation staff on a given unit recorded their patient care activities. They recorded direct and indirect care they provided for each patient during the entire time they were on duty. Direct care was defined as those activities required to be done in the presence of the patient. Direct care activities included assisting with activities of daily living (eating, dressing, grooming, toileting, transferring, bathing, ambulating/ transferring and transporting), providing specific treatments (wound care, IV therapy, catheterization, rehabilitation therapy, teaching), conversing with or observing the patient, and intervening to modify the patient's behavior. Indirect care was defined as those activities related to the care of a particular patient that may be completed without the physical presence of the patient. Indirect care activities included preparing equipment for use in treatments (e.g., dressing trays), charting or completing other paperwork related to an individual's care, running errands on behalf of a patient, or routinely making beds.

When care was given, time spent in the activity was estimated by the provider and recorded to the nearest minute. Providers were considered to include paid staff as well as students, volunteers, family and friends who provided major substitute care, though the nurse responsible for the patient recorded time for the substitute care givers.

Separate forms were used to record individual and group patient care activities. An additional form was used to record medication distribution and charting. In all cases, even for group activities and medication rounds, the time was recorded for individual patients and then summed for each patient. There was no attempt to summarize the amount of time each staff member or type of provider spent in each type of activity. However, as a check on the accuracy of the data recorded, each staff member completed a fourth form (unit time form) at the end of each shift. On this form the staff member summed his or her entries for the time on duty and added time spent on non-patient care activities (housekeeping, personal time, general unit maintenance). The total time was expected to come within fifteen minutes of the scheduled on duty time for that staff member. For example, for an eight hour shift the sum of activities listed should be between 7 hours 45 minutes and 8 hours 15 minutes.

Self-recording rather than direct observation was the method selected for obtaining provider activity data for the following reasons: (a) self-recording makes it possible to collect a large amount of data relatively cheaply since all care providers serve as (unpaid) data collectors, and (b) the care providers are familiar with the type of care being provided. The major disadvantages of the method are that (a) it requires orientation and training of all personnel in the techniques being used, (b) there is potential for distortion based on self-interest, selective recall and confusion of time periods, and (c) it may disrupt the work of the staff. Errors in self-recording are most often related to how busy the staff are and to memory. The person may simply forget to record, or if recording may forget what was done and record either more or fewer activities than were actually carried out. The presence of supervisors during data collection and their review of completed unit forms at the end of each shift were the means used to minimize these errors.

Facility data. A third type of data was collected from each facility. Facility data included information about staffing patterns and any other factors present at the time of data collection that might affect normal patterns of care delivery. These data were collected by data supervisors. In addition, facility data on usual staffing, costs and revenues were obtained from monthly and annual reports submitted to the Department of Hospitals and Medical Care.

Table 3 summarizes the types of data collected, the forms used, the sources of data and the persons responsible for collecting it. Copies of the data collection forms and the training manual for facility staff are included in Appendix C. These forms were developed with the assistance of staff from Good Samaritan Society facilities, who volunteered to use and criticize early versions of the forms.

Data Collection Procedures

Pilot test. Prior to the collection of data, a trial run or pilot test was conducted at two sites: Lynnwood Extended Care Centre, Edmonton, and Veterans' Administration Nursing Home, Portland. The purpose was to provide a trial run of the procedures for training facility staff and for monitoring data collection and a test of the final version of the data collection forms. The data supervisors conducted the pilot tests as preparation for their roles in the Provider Activity Study. Information obtained from the pilot test was used to revise the following:

Table 3. Data for Provider Activity Study by Type, Source and Data Collector

TYPE OF DATA	SOURCE OF DATA	PERSON RESPONSIBLE FOR COLLECTING DATA
I. **Patient Characteristics and Care Requirements** - Patient Review Form (PRF)	Patient charts, care plan, staff report	17 data collectors hired for study (patient reviewers)
II. **Resource Use Data**		
A. Actual Care Provided (Direct — Indirect) 1. Patient Care Time Form A (Individual) 2. Patient Care Time Form B (Group) 3. Medication Form C 4. Unit & Personal Time Summary Form D	Self report by provider of estimated time spent in specified activities	Providers — (RNs, RNAs, NAs, recreation therapists, ward clerks, occupational and physical therapists and aides) record own data. Data Supervisors check forms for completeness at end of each shift. RN in charge records volunteer family data.
B. Special Care Provided 1. Intermittent Care Form E	Patient charts and report by provider (time to be estimated)	Data Supervisors
III. **Facility Data**		
A. External (Environmental) Factors Influencing Resource Use — Time of Data Collection		
1. Unit Environment Form F	Nurse in charge of unit	Data Supervisors
2. Facility Information Forms G, H & I	Direct observation and interview with facility administrator, DON.	Data Supervisors
B. Wage Data Form J	Facility Administrators	Data Supervisors
C. Cost Data	Annual and Monthly Reports	Provided by AHMC
IV. **Data to Serve as Check on Research Process**		
A. Form H: Shift Checklist	Purpose: to monitor providers who were recording data on Forms A, B & C	Data Supervisor
B. Form I: Debriefing Form	Purpose: to monitor source and adequacy of PRF data	Data Supervisor

1. Plans for training facility staff, including content of instructions and method of presentation;
2. *Facility Manual: Instructions for Use of the Forms;*
3. Plans for ensuring completeness and accuracy of data, including plans for reviewing forms at end-of-shift and instructions for handling questions that might arise during data collection;
4. Data collection forms.

Data Collection. Patient characteristic data, resource use data, and selected facility data were collected simultaneously in the nine participating facilities from September 22 through October 18, 1986.

The schedule, shown in Appendix D, was designed to permit one of the data supervisors to be on site at each facility during the entire period of data collection. Further, the schedule was designed to minimize the impact of involvement by facility staff. Only two units per facility were involved in data collection at any one time, and data collection on each unit was completed within a week. Orientation and training of staff from the targeted units were done on the Monday and Tuesday of each week. Several sessions were scheduled during the two days to accommodate staff working on different shifts. Provider activity recording began with the night shift on Tuesday and continued for three days of 24-hour recording, ending Friday evening. Patient review data were collected during the same week. Data collection on the PRF's began on Monday and was completed on Friday. Each data collector completed an average of five patient reviews per day and assisted the data supervisor in monitoring provider recording of caregiving activities.

Data Supervisors, Data Collectors, and Facility Personnel

Data Supervisors. Six RNs acted as data supervisors for the Provider Activity Study. They collected facility data, trained facility personnel, supervised all aspects of data collection and acted as liaison between the study team, facility and patient. The supervisors also conducted regular reliability checks with each classifier. A supervisor was present at each facility during the entire data collection period.

Selection and Training of Data Collectors. A total of 17 nurses, occupational and physical therapists from Edmonton, Calgary, Lethbridge and Cardston, selected on the basis of their experience in long term care settings, were trained to carry out the patient reviews. All data collectors attended a five-day training session in Edmonton during the week prior to data collection (Sept. 15-19, 1986). Data collection supervisors also participated in the session, which included both classroom and field training.

The training session was designed to ensure that data collectors would be able to:

1. understand and use all patient-related data collection instruments;
2. understand and explain all provider activity data collection instruments, and the data collection procedures;
3. demonstrate inter-rater reliability in the use of patient-related data collection instruments, at .85 or higher;
4. understand the overall data collection protocol and the roles of each level of participant;
5. understand the management responsibilities and associated functional roles required of all data collectors, specifically,
    a. collecting patient-related data,
    b. assisting in supervision of provider activity data collection,
    c. performing periodic inter-rater reliability checks to maintain inter-rater reliability at .85 or greater throughout the data collection process.

Each day included a didactic session in the morning and a practice session in the afternoon. After day 1, the morning began with a quiz to test comprehension of material covered the previous day. The final day included both a written and a performance test. All participants were given a copy of the *Manual for Data Collection Procedures* and the *Facility Manual: Instructions for Use of the Forms* developed for the project. (These manuals are in Appendix B.) Inter-rater reliability with use of the Patient Review Forms was established during the training session (see pp. 17–22, for a detailed description of reliability testing).

Training of Facility Personnel. All facility personnel involved in the provider activity data collection effort received approximately 1-2 hours of classroom lecture (orientation and training) and 2-3 hours for practice recording, using the time sheets. Training was conducted by data supervisors, using the *Facility Manual: Instructions for Use of the Forms*. Many possible sources of error were discussed during the training session. In addition, either a data supervisor or one of the data collectors (patient reviewers) was on site at all times during data collection, to monitor the self-recording effort and undertake periodic checks to ensure the accuracy and completeness of the data. The supervisor/monitor reviewed completed forms at the end of each staff member's shift and when omissions were noted or the total hours allocated to activities did not equal the time on duty, assisted the staff member to make corrections.

Quality of Provider Activity Study Data

Several steps were taken to ensure that the provider activity data were accurate and complete. First, all data collectors were thoroughly familiar with the Provider Activity Study forms and procedures and were instructed to assist data supervisors in the training and monitoring of facility personnel. While all facilities were requested to ensure that all staff providing patient care were scheduled to attend the orientation and training sessions, some scheduling difficulties were encountered. In the event that a staff member missed the scheduled sessions, on the spot training and continued monitoring were provided by the data supervisor and/or data collectors. In addition, the data collection forms were designed to facilitate recording by providers in a way consistent with the manner in which care was generally delivered. For example, a separate form was developed for recording time spent in the administration of routine and prn medications; individual direct patient care forms contained patients' names and room numbers; and a different form was used to record time spent in group activities. Not only were the forms designed for ease of data collection, but they also permitted numerous opportunities for cross-checking and verifying the accuracy of data collection. Of particular importance was the shift summary form, which was designed as a final check to ensure that the total time spent with individual patients was reasonable in comparison to time spent on unit and personal activities. Further, data collectors were available to answer questions throughout the day and evening shifts and at the beginning and end of the night shift. Data supervisors were present and/or available by phone throughout the entire data collection period in all facilities. All data collection forms were reviewed by the data supervisors for completeness and reasonableness and were subjected to a final verification during data analysis.

Overall, the study team was highly confident of the quality of the data obtained. The facilities were extremely supportive in the data collection, and staff displayed a keen interest in the project and appeared to be serious about their role in providing the necessary data.

Ethical Issues. While the care provided to patients was not directly observed, both data supervisors and data collectors, by their presence on the units, had an opportunity to witness direct patient care activities. In the unlikely event that unsafe practices or care involving questionable ethics would be observed, the following procedure was developed:

a. Data supervisors were to report such incidents directly to the nursing administrator or chief officer in charge of the facility at the time of the observed or suspected practice.

b. Data collectors (patient reviewers) were to report such incidents directly to the data supervisor assigned to the study site, who in turn would report the incident to the nursing administrator or chief officer in charge.

c. Data supervisors and data collectors were not to interfere with the delivery of care unless the client's safety was at immediate risk.

Security and Confidentiality of Data. All completed data forms were transported to Oregon on the person of the data supervisors. Although patient names appeared on the data collection forms used by facility staff, only code numbers were used on the Patient Review Forms. Those provider forms which included patient names were destroyed after the activity data were transferred to computer tapes and verified.

Data relating to facility personnel were analyzed by provider type only. Individual staff were not identified by a unique code number. With the exception of the self-recording activities of facility personnel, the nature of the data collected did not depart from information routinely recorded in long term care facilities and the data collection procedure did not involve the patient directly. For this reason, individual patient and personnel consents were not required. Agreement to participate as a study site was considered to constitute facility consent.

E. Reliability of Classification Data (PRFs)

The aims of the reliability analysis were to (1) provide information on the reliability of patient characteristic data upon which the empirical test of the classification system would depend, and (2) provide information on the reliability of the classification system prior to implementing the system throughout the province.

The reliability testing focused on the establishment of reliable data for empirical analyses of the classification system. Specifically, the aim was to establish inter-rater reliability on the indicators of care requirements that would be used in classifying patients. For the purposes of these analyses the reliability of the classification rules was not checked, since (1) the final classification indicators and rules had not yet been determined, and (2) error-free classification could more efficiently be accomplished by the computer and modified as needed to achieve the final decision rules. Inter-rater reliability was (1) established during the training of data collectors, (2) audited throughout the data collection period to ensure that reliability was maintained and (3) retested in January, 1987. The procedures for establishing, auditing, and retesting to evaluate changes in inter-rater reliability are described below.

Establishing Inter-Rater Reliability During Training Sessions for Data Collectors and Supervisors Involved in the Provider Activity Study (September 15-19, 1986)

Inter-rater reliability for the data collectors and supervisors was established in conjunction with the training workshop held prior to provider activity data collection. On the first morning of the training data collectors and supervisors (reviewers) were introduced to the Patient Review Form (PRF) and to the data collection manual. In the afternoon each completed a PRF based on a common record provided by the training staff. While inter-rater reliability was not computed for this exercise, the responses to each item were discussed, discrepancies identified, and clarifications made.

On the second morning, data collectors and supervisors were given a lecture on the meaning and importance of reliability. They were also given a second patient record to evaluate using the PRF. Again, responses to each item were discussed in the group and discrepancies identified. Decisions were made regarding the desirable interpretation of items, the need for clarification in the manual, etc.

Data collectors and supervisors were then provided the opportunity to assess a total of six patients each. Access to patients had been prearranged with a combined nursing home and auxiliary hospital facility. Responsibility for patient consent was assumed by the facility administrator. The procedure for data collector, supervisor, and patient assignment was as follows: the reviewers were divided into teams with at least one supervisor in each group (the availability of supervisors and therefore the size of the teams varied from day to day). Each team was assigned to one floor of the facility. The supervisor paired the reviewers and assigned patients to the pairs . Each reviewer was paired with at least two others and assessed six different patients. Patients were selected on the basis of chart availability.

Each pair of reviewers independently completed a PRF based on data from the patient's chart, Kardex, and other available written information. In addition, each reviewer independently interviewed a staff member to verify or obtain data.

Percent agreement between pairs of reviewers was calculated daily. Differences were discussed as a group. Partners were asked to compare each of their responses on the PRF and to compute an overall percent agreement using the number of agreements as the numerator and the total number of response modes in the PRF as the denominator (n = 113). A mean percent agreement for the group was also calculated. The percent agreement across cases for the group was acceptable, ranging from 79.5 to 96 for day one, from 87.6 to 98 for day two, 87.0 to 97 for day three, and from 85.8 to 99 for day four. The mean percent agreements (the average agreement across cases) for the four days were high, ranging from 90.89 to 93.35.

Using data from the final day, percent agreement was also calculated for each item. Agreement ranged from 47 to 100 percent. Sixteen items had percent agreements of less than 75 percent. The patterns of disagreement on those items suggest, however, that for most items, the discrepancy would not result in the patient being placed in different classification categories. For example, all of the disagreements on the mobility and "patient demands attention" items were between the zero and one response options. Similarly, three of the four discrepancies on the transferring item were between the zero and one response options. Discrepancies on the medical diagnosis items were generally related to specificity, not major problems.

For some items the disagreement appeared at many levels of the response mode. "Bathing," "agitated behavior," and "family participation in care" are examples. Disagreement on these items was of more concern. If these items were used as predictors, there was a greater potential that patients would be placed in different classification categories. The problem areas identified during the training continued to be checked during the data collection itself.

Auditing On-Going Inter-Rater Reliability During the Provider Activity Study (September 22 – October 18, 1986)

A reliability check was conducted by the data supervisor for each data collector during each week of provider activity data collection. (Although scheduled, a check was not completed for data collector number 6 during her third and last week of data collection.) One patient was selected by the data supervisor from among those reviewed by a given data collector during that week. The patient was then independently reviewed by the supervisor using data from the same sources available to the data collector. In all, 53 patients were reviewed by both a data collector and supervisor. The distribution across facilities is shown in Table 2, Appendix D.

Reliability data were analyzed in two stages. The first stage was in the field during the provider activity data collection. In this analysis, percent agreement between supervisor and data collector was calculated by the supervisor on a per patient basis. The purposes were to (1) ensure that data collectors were using the same definitions and (2) identify data collectors who might need additional item clarification before proceeding. Percent agreement ranged from 84.0 to 99.1 with a mean agreement of 92.

The analysis for the second stage took place in Portland after the completion of the Provider Activity Study. In this latter analysis, percent agreement was calculated by item, domain and category across all data collectors. (See Table 4.) The purpose was to evaluate the reliability of the items for inclusion in the classification system. Through a misunderstanding, supervisor ratings for 17 of the 53 patients were not retained and therefore data for only 36 patients were available for these analyses.

The extent to which the data collectors and supervisors agreed on activity of daily living (ADL) items ranged broadly, from .527 for grooming to .805 for eating. When item responses were collapsed to eliminate distinctions not needed for classifying the patient's ADL level, agreement increased to 77.8% for the four items used in the classification system.

Agreement on the two global behavioral (BDL) items (injury to self and others, and coping) was low — 66% and 63.8%, respectively. When these BDL items were collapsed to reflect only the distinctions necessary for classifying patients in different BDL levels, the agreement increased to 72% for the injury item. Agreement on the "other behavioral problems" item was considerably higher, at 94%. That agreement, however, was primarily agreement that no problem existed. Agreement on specific behavioral items ranged from 66% for aggressive behavior to 100% for inappropriate sexual behavior, smoking, and use of alcohol. Mean agreement across all of the specific behavioral examples was 86.4%. Again, the distribution in many of these categories was very restricted, with most patients being rated as having no problem.

With regard to rehabilitation, agreement was very high on both the ADL and BDL items, ranging from 81% to 100% with a mean of 92.75%. On all items, agreement on the goal of the rehabilitation was 100%. The frequencies on these items were very low, however.

Agreement on the health status measures varied. There was 100% agreement on the items assessing comatose and terminal illness, but that agreement was based on absence of the condition. Agreement on both the orientation and memory items was low, 66%. There were only two responses to the special program item related to respite and day care and the agreement of 66% is therefore very unstable. When the medical diagnosis items were collapsed into 12 major groups, the percent agreement was very stable, ranging from 91% to 100%, with a mean of 95.1%.

With the exception of the communication item (% agreement = 66), agreement was quite high for all of the continuing care level (CCL) items. Agreement ranged from 75% for the fecal incontinence/ostomy care item and the number of medications, to 100% for the explanation of communication problems and for most types of medication.

Agreement was also high for the therapeutic interventions and programs (TIPs) items. Agreement ranged from 88% for the special skin care items to 100% for oxygen, suctioning, IVs, tube feeding, self medication and diagnostic workups. Average agreement for this group was 94.9%. Agreement for the single external demand level item was moderate, 72%.

Selected items were combined to create a single measure of the level of care needed within each of three domains, ADL, BDL and CCL (incontinence), and these three measures were then combined into a single set of categories. (The rationale, procedure and definitions used to derive these groupings are described in Section III.) Although alternative definitions of the levels and categories were evaluated, the percent agreement reported here is for the final version (see Section III). As would be expected given the level of agreement on individual indicators, the extent to which those patients reviewed by both a data

Table 4 Reliability Results During and After Provider Activity Study: Percent Agreement for Selected PRF Items

Item	1986 %	1987 %	Item	1986 %	1987 %
Health Status			BDL		
Comatose	100	---	Injury	66 (72)a	100
Terminally ill	100	100	Coping	64	100
Orientation	66	100	Other Behavior	94	95
Memory	66	100	Wandering	91	100
Special Programs 1	66	100	Hoarding	86	100
Special Programs 2	92	100	Aggressive	66	100
			Agitated	72	97.5
ADL			Suspicious	86	100
Eating	80 (86)a	100	Ingestion	97	100
Toileting	67 (67)a	100	Inappropriate Sex	100	100
Transferring	78 (86)a	100	Smoking	100	100
Dressing	61 (72)a	95	Alcohol	100	100
Grooming	53	95	Resist Rx	72	100
Mobility	61	95	Sad	69	100
Rehab OT	81	97.5	Somatic Complaint	91	97.5
Rehab PT	100	100	Suicidal	97	100
Bathing		100	Angry	83	97.5
			BDL OT	94	100
			BDL PT	97	100
CCL					
Urinary Incontinence	83	100	TIPS		
Fecal Incontinence	75	97.5	Chest Care	97	100
No. of Medications	75	100	Oxygen	100	100
Medications			Suctioning	100	100
Digoxin	100	97.5	Parenteral Fluids	100	100
Diuretics	100	100	Tube Feeding	100	100
Thyroid Extracts	100	100	Wound Care	92	100
Anti Convulsants	100	100	Special Foot Care	97	100
Anti Coagulants	100	100	Special Skin Care	88	100
Lithium	100	100	Self Medication	100	100
Hypo Glycemic Agents	100	100	Pain Therapy	94	100
Chemotherapeutic Agents	100	100	Splinting	97	100
Antihypertensives	88.5	100	Seating	92	97.5
Other	78.5	100	Environmental Control	97	100
Communication	66	100	Special Assessments	100	100
Physical Impairment	100	---	Other	69	100
Language Barrier	100	---			
Other	100	---	External Demand Level		
			Family Participation	72	100
Special Monitoring					
Circulation	95	100			
Skin Integrity	80	100			
Mental Status	97	100			
Nutrition & Fluid Intake	91	100			
Other	88	100			

Note The 1986 data reflects item agreement between rater and supervisor during the provider activity data collection reliability evaluation. The 1987 data reflects item agreement between 2 raters during the January 1987 reliability evaluation.

a) Percent agreement when item values were recoded to reflect classification thresholds used for ADL, BDL levels.

collector and a supervisor were placed in the same ADL, BDL, and incontinence levels and the same categories was low. Agreement on the ADL level (using eating, toileting, transferring, and dressing items) was 58.3%. Agreement on the BDL level (using the coping and risk items) was somewhat higher, 63.8%. Agreement on the incontinence level was highest, 72.2%. Data collector and supervisor agreement on patient categories, using the ADL, BDL and incontinence levels, was 55.5%. Agreement on the categories, levels and some items was clearly less than optimal. However, the correlations between data collectors and supervisors on the levels of care and categories were quite high, ranging from .81 for BDL to .88 for the recommended categories. These high correlations indicate that the scores assigned by the data collector were "in step" with the scores assigned by the supervisor. That is, patients who were given a high level or category assignment by the data collector tended to also receive high assignments by the supervisor. The same was true of low scores. Inspection of the data suggest that there was very little systematic bias in the way the data collectors scored the patients. That is, data collectors did not consistently score patients higher or lower than the supervisor. The only exception was on BDL level. In 13 of the 16 cases of disagreement the data collectors scored the patients higher. The difference between the frequency of higher and lower assignments given by the data collectors and supervisors was significant ($N = 13$, $\bar{X} = 3$, $P = .046$, sign. test).

Debriefing comments and notes from supervisors suggested that very little of the difference was due to the way the items were written. Most disagreements appeared to stem from discrepancies in the information provided by different staff members. This in turn appears to reflect the variability of patient performance at different times of the day and for different staff members. It also appears to reflect differences in staff's perception of how a patient performs "in general." When discrepancies occurred, most supervisors said they felt the data collector information was probably the more accurate because the data collector was more familiar with the organization of the unit, work assignments, etc. This impression is supported by the high agreement seen in rehabilitation and TIPs items. Both data collector and supervisor had access to identical sources of data: written documentation and a single or very small pool of rehabilitation personnel. The impression is also supported by the findings of the final reliability study in January 1987, in which agreement was 100% on most of the items and would therefore be 100%, or close to it, on the categories as well as the ADL, BDL, and incontinence levels. It was decided, therefore, that low agreement between data collectors and supervisors during the Provider Activity Study would not automatically exclude an item from the classification scheme.

The final reliability check, conducted in January 1987, was designed to check the impression that the reason for the disagreements was variation in source of data and time. Prior to the January recheck, the Expert Panel assisted the study team in 1) removing ambiguities in the rules for completing the PRF items, 2) specifying data sources and 3) establishing a rule for resolving discrepancies. These changes are reflected in the revised PRF (Appendix E).

Final Reliability Study (January 1987)

The subjects for the final reliability study were a subsample of patients included in the Provider Activity Study. To select subjects for this study, all patients from a facility housing the entire spectrum of patient types (the combined facility) were classified using PRF data from the Provider Activity Study and the version of the classification categories available at that time. That version contained eight categories, in contrast to the subsequently recommended classification system which contains seven. Of the 301 patients classified in this manner, 40 were selected for review. First, ten patients were randomly selected from each of the eight classification categories; then, the first five from each category who were also available became the reliability sample. This method of selection was used to provide a sample which would reflect the full range of functional deficits and need for services. The resulting sample included patients from each of the 12 units in the facility.

Two data collectors conducted all patient reviews. Both were data collectors in the Provider Activity Study and therefore had had extensive training and experience in the administration of the PRF. Additional training was provided to acquaint the data collectors with changes made in selected items by the Expert Panel and to clarify procedures to follow in conducting the review and reliability check. Data collectors were given specific instructions regarding the source(s) of data for each item in the PRF and the rules for resolving any discrepancy between sources.

The two data collectors reviewed and independently rated each of the patients in the study. After independently reviewing a patient's records, one interviewed the nurse (RN) responsible for the patient's care to check the currency of the data, while the other observed. After reading the documents and conducting/observing the interviews each data collector independently completed the PRF. Data collectors were instructed to refrain from discussing the patient while they completed the PRF and also after completing the PRF. While the latter type of discussion would probably lead to higher rater agreement, opportunities for such discussions may not be available to individuals charged with implementing the classification system.

To increase efficiency, the data collectors were flexible in determining interviewer/observer roles and the order in which patients were reviewed. On some units, data collectors alternated roles after each review. On other units, it was considered more efficient to group patients by unit or by the nurse who was interviewed. In the latter instance, one data collector was responsible for conducting all the interviews for patients in that group.

Percent agreement between the two raters was calculated by item and by domain. Item agreement between the raters was very high: 100% on 57 of the 68 items on the PRF. For the remaining 11 items, percent agreement was also high, 95 or 97.5%. Disagreements were limited to one or two patients out of the 40. This represented a substantial improvement over the first reliability check.

Agreement was also very high by domain. There was 100% agreement on the items in the health status, special monitoring and external demand domains. The average agreement for the remaining domains ranged from 98.1% for ADL to 99.8% for TIPS. CCL and BDL were 99.6% and 99.3%, respectively. Agreement on the four ADL, two BDL, and two incontinence items used in the classification system were 98.75%, 100%, and 98.75% respectively. While not analyzed, the above findings suggest that the agreement on levels and categories was very high.

Discussion

Most of the error identified during the reliability testing of the items appears to have been eliminated during the January 1987 testing. (See Table 4.) Disagreement between data collectors and supervisors (error) in the field could have been introduced in a variety of ways including (1) a change in the patient's condition between the two reviews, (2) a discrepancy in the secondary data used by the data collector and supervisor (introduced by using different informants), and (3) ambiguity in the items. In the final reliability check the first source of error was addressed by having the two reviews take place on the same shift, usually simultaneously. The second source of error was addressed in two ways: (1) by having the two data collectors obtain data from the same sources, i.e., the written documents and registered nurse responsible for the patient's care, and (2) by having the data collectors rely on the RN's data if it differed from the data in the chart. The third source of error was addressed by changing the wording in some of the items (e.g. the descriptors "occasional" and "frequent" were replaced with specific time periods).

III. THE ALBERTA PATIENT CLASSIFICATION SYSTEM FOR LONG TERM CARE FACILITIES

The data collected in the Provider Activity Study were used to evaluate and modify the *a priori* conceptualization of the classification system. All components of the system — the domains, indicators, levels of care and categories — were modified using an iterative process. The interplay between the statistical analysis of the provider data and the clinical judgment of the Expert Panel resulted in the final version of the classification system. The categories that explain variation in nursing resource use are presented in this section; categories explaining rehabilitation resource use are described in Section IV. This section is organized as follows: Part A presents the domains, indicators and levels of care that are used in the nursing categories. It includes a discussion of the criteria, analysis and decisions that determined the selection of indicators and their combination into ordinal measures of care requirements (levels of care). In Part B the categories are presented. The discussion includes definitions of the categories and the evaluation of their clinical relevance. Part C is a discussion of the properties of the categories — an evaluation of their performance on criteria of homogeneity, discriminability, ordinality and predictive validity. Finally, a review of the extent to which the categories meet the three sets of criteria guiding their development (methodological, clinical and administrative) serves to summarize the section.

A. Modifying the Basis for Classification

Overview: The Analytic Approach

Underlying the approach used to develop the categories is the assumption that patient needs for care to correct or compensate for the two types of functional impairment (ADLs and BDLs) will be the major determinant of resource use in long term care facilities. Therefore, the categories as initially conceptualized were based on ADL and BDL levels of care. Using data from the Provider Activity Study, the *a priori* conceptualization was modified until the categories met the specified criteria. Resource use, measured by weighted minutes of care provided by all nursing personnel, was the dependent variable in the sequential process of (1) selecting indicators from the ADL and BDL domains, (2) defining levels of care, and finally (3) testing the categories. Each modification suggested by the statistical analysis was reviewed by the Expert Panel for clinical implications so that the final set of categories would meet the clinical as well as statistical criteria.

The selection of indicators (items) for inclusion in the classification system was based on a review of the data collected during the Provider Activity Study and a reevaluation of the items in light of both statistical and clinical criteria. Specifically, to be included, an indicator had to reflect services required, not services provided; capture variation among patients on that specific variable; predict overall care needs; be stable over time, assuming the patient's condition was unchanged; minimize negative impact on the patient and maximize positive outcome. In addition, indicators could not be redundant and they could not be easily manipulated by the provider. The aim was to select the fewest number of indicators that met the criteria and reflected the care requirements in the sampled domains.

Although ideally the indicators should meet all criteria, this was not always possible and compromises were necessary. As a minimum the item had to vary across patients who had different care needs. This was determined by examining the distribution of patients on each item. An item with better discrimination power was preferred over one that grouped nearly all patients into a single value. Moreover, since actual patterns of use can be significantly distorted by lack of adequate resources, the judgment of the Expert Panel was required at this stage in the selection of items. Next, the correlation among items was examined. Indicators that are highly correlated are redundant. To select between the highly correlated indicators, other criteria were considered and the indicator that best met the remaining criteria was retained. Reliability data (presented in Table 4, Section II) also entered into the selection process.

After establishing a set of ADL-BDL categories that explained the maximum variance in resource use, indicators from the remaining domains were tested to determine if the R^2 value (explained variance) could be increased by their inclusion. Thus, the primary criterion for selecting indicators for inclusion from the remaining domains was their ability — either singly or in combination — to increase the explained variance in resource use. The only other domain from which items contributed to a significant R^2 increment was continuing care level (CCL). In addition, the indicators from the other domains were cross-tabulated with the basic categories to determine if there was an association between these categories and any of the other indicators. In other words, the distribution of other indicators within categories was examined to determine if the categories differed in, say, the proportion of patients receiving therapeutic interventions and programs.

Indicators: Selection of Items From ADL and BDL and CCL Domains

Four of the seven activities of daily living (ADL) items and two of the three behavioral items (BDLs) were retained for use in the classification categories. These items are eating, toileting, transferring, dressing, ineffective coping, and risk for injury to self or others. Bathing, grooming, mobility, and other behavior items were omitted. The specific rationale for including some items and excluding others is presented below.

ADL Items Included

Transferring. The transferring item has been retained as a measure of mobility because it appears to meet most of the established criteria. It captures variation among patients. Distribution of the responses ranged from 0.9% (patient is not transferred) to 40.9% (patient needs no assistance). It has the potential to predict total care needs: it is highly correlated with other items that are known to be associated with high care needs. As illustrated in Table 5, the correlations with other ADL items retained for use in the classification system range from .603 with eating to .773 with toileting. The item does not appear to be easily manipulated by the provider. From a clinical standpoint, a patient's ability to transfer is probably fairly stable over time. Although highly correlated with other items retained in the study, transferring is not entirely redundant. Some patients who are classified as dependent on the transferring item are independent on other items. The item is based on services that are offered but also presumed to be needed. The data are observable and readily available. The reliability during the Provider Activity Study was moderately high, 78%, and increased to 86% when the score responses were recoded to reflect the critical threshold used in the classification decision rule. The distinction between a transferring score of four and a score of eight is not necessary for determining the ADL level. Disagreement between these two scores can therefore be disregarded. Reliability increased to 100% during the follow-up test in January 1987.

Eating. The eating item also appears to meet most of the indicator criteria. It captures variation among patients. The distribution of scores ranged from .7% (tube fed) to 43.2% (eats without assistance). It can be used to predict total care needs: it is highly correlated with other ADL items known to be associated with high care needs. As illustrated in Table 5, the correlations range from .554 with dressing to .629 with toileting. While a patient's score on eating can be manipulated by providing more care than is necessary and thus can be somewhat unstable over time, some type of an audit system could be established which would detect discrepancies between care given and indications for care. Although tube feeding is given an 8, the classification presents no incentive to promote tube feeding over feeding by mouth, since scores of 4 or 8 are treated as identical when determining the ADL level. Although highly correlated with the other ADL items, eating is not totally redundant. Some patients who are independent on eating are dependent on other items. Although the item does measure what is given, the service is so readily available that it is assumed that it also measures what is needed. Data for the item is available at all sites and is based on observable characteristics and interaction between the patient and the staff. The item has moderately high interrater reliability. Agreement between supervisors and data collectors during the provider activity phase of the study was 80% (n=36) (see Figure 2). When score responses were recoded to reflect thresholds used in the classification decision rule, agreement increased to 86%. Agreement increased to 100% during the follow-up test in January 1987.

Toileting. The toileting item also meets most of the criteria. Variation among patients on that variable is evident in the distribution of scores, which ranged from 4.8% (requires someone to bring equipment or assist) to 34.7% (needs no assistance). It can be used to predict total care needs. It is highly correlated with other ADL items retained in this study that are known to be associated with high care needs. As illustrated in Table 5, the correlations range from .629 with eating to .773 with transferring. As with all the ADL items, toileting can be manipulated somewhat by the provider; for example, two people can be used to assist when one would have been sufficient. However, the items are worded in a manner that minimizes the negative impact to the patient. While the amount of assistance that a patient needs may vary

Supervisor Scores on Item

Data Collector Scores on Item	0	1	2	3	4
0	14 38.9%	1	1	0	0
1	1	7 19.4%	1	0	0
2	0	0	1 2.8%	0	2
3	0	0	0	5 13.9%	0
4	0	0	1	0	2 5.6%

Figure 2 **Score distributions for eating item by supervisors and data collectors. Percent agreement = 80.**

with the time of day and therefore be somewhat unstable, this has been addressed by explicit instructions regarding which time frame to use. Like the other ADL items, toileting is not redundant. Some patients who are independent on the toileting item are dependent on other items. The item is based on services given but also presumed to be needed. Data on this item is readily available in all sites and is based on observable patient characteristics. While the reliability was quite low, 67%, during the Provider Activity Study (see Figure 3), reliability increased to 100% during the follow-up test in January. This increase was a result of the new specifications regarding which informant to use and how to deal with variation in performance over the specified time frame.

Dressing. The dressing item also appears to adequately meet most of the indicator criteria. It captures variation among patients. The distribution of scores ranged from 1.0% (patient does not get dressed) to 44.2% (needs total assistance). It can be used to predict total care needs. Dressing is highly correlated with other ADL items that are known to be associated with high care needs. As illustrated in Table 5, the correlations range from .554 with eating to .646 with transferring. Although dressing can be manipulated by the provider, it is less susceptible to manipulation than grooming, an item that was omitted. The item appears to be stable over time. Data collectors did not report any discrepancies related to the time when the review was conducted. Negative impact is not a major problem with this item. Like other ADL items, not participating in the activity (i.e., not getting dressed) does not automatically place the patient in a high care need category. Although correlated with the other ADL items, dressing is not completely redundant. Some patients are independent on other ADLs and dependent on dressing. (This may be a reflection of the correlation between dressing and the behavioral items — see Table 6.) The item is worded to reflect services needed though, like most functional items, it can only be observed in relation to the provision of services. Data on the item is readily available at all sites and is observable. Although the reliability was low during the Provider Activity Study, 61%, much of the disagreement was between the 0 and 1 level, which is not critical to categorization (see Figure 4). When the levels were combined to reflect the critical thresholds for classification, agreement increased to 72%. Agreement increased to 95% when tested in January 1987 with more explicit instructions regarding the sources of information.

ADL Items Omitted

Bathing. The bathing item was omitted because it fails to meet three criteria. It is easily manipulated by the provider, does not vary across patients and therefore is not predictive of differences in care requirements. The extent to which bathing is under the control of the provider is illustrated by the frequency distribution of the item. Ninety-five percent of the total sample were given a score of three or four indicating a need for total assistance or a need for constant supervision and

		Supervisor Scores on Item					
Data Collector Scores on Item		0	1	2	3	4	8
	0	10 27.8%	0	1	0	0	0
	1	0	0	1	0	0	0
	2	1	1	1 2.8%	1	0	0
	3	1	1	0	6 16.7%	0	0
	4	0	2	0	1	5 13.9%	2
	8	0	0	0	0	0	2 5.6%

Figure 3 Score distributions for toileting item by supervisors and data collectors. Percent agreement = 67.

		Supervisor Scores on Item					
Data Collector Scores on Item		0	1	2	3	4	8
	0	5 13.9%	2	0	0	0	0
	1	2	0 0%	0	0	0	0
	2	1	1	2 5.6%	3	0	0
	3	0	0	1	15 41.7%	0	1
	4	0	0	1	1	0 0%	0
	8	0	0	0	1	0	0 0%

Figure 4 Score distributions for dressing item by supervisors and data collectors. Percent agreement = 61.

Table 5 Correlations Between ADL Items (Pearson's r)

Items	Eating	Toileting	Transferring	Dressing	Grooming	Bathing	Mobility
Eating	---	.629	.603	.554	.570	.159	.523
Toileting		—	.773	.630	.620	.191	.548
Transferring			---	.646	.590	.200	.657
Dressing				---	.797	.083	.505
Grooming					---	.096	.414
Bathing						---	.148
Mobility							---

minimal physical assistance to complete the task. In addition, bathing was not highly correlated with other ADL items. As illustrated in Table 5, the correlations ranged from .083 to .200. This means that a dependent score on bathing was not highly indicative of a dependent score on other ADL items. For example, 76.9% of all patients had a more dependent score on bathing than they did on eating (see Figure 5).

The bathing item appears to reflect practice based more on overall safety and liability policies surrounding the use of bathtubs than on the functional ability of the patient. Thus the bathing item is not useful for predicting total care needs.

Grooming. Grooming was omitted because it fails to meet two criteria. The item is somewhat redundant and is easily manipulated by providers. As illustrated in Figure 6, the agreement between supervisors and data collectors for the first sample of 36 patients was low, 53%. That agreement increased to 95% in the follow-up sample, i.e., the January reliability study (see Table 4). However, discussion with data collectors suggests that grooming is a highly value laden task and that raters have very divergent views of what constitutes adequate completion of the task. It does not seem necessary, therefore, to retain this item, especially since grooming and dressing are quite redundant. As illustrated in Table 5, the items were highly correlated, r=.797. An examination of Figure 7 suggests that any error associated with substituting dressing for grooming would be in the most acceptable direction. Almost 95 percent of the sample were captured at an equal or higher level by the dressing item.

Mobility. Mobility was omitted because this item and the transferring item are redundant and transferring better meets the other criteria for inclusion. As illustrated in Table 5, the correlation between mobility and transferring was quite high, r=.657. As indicated in Figure 8, 90% of the sample were identified at an equal or higher level by the item on transferring. It appears, therefore, that the mobility item can be omitted without a substantial loss of information. Further, mobility had a lower rate of inter-rater agreement than transferring (61% versus 78%) during the Provider Activity Study. While agreement was very high for both items during the final reliability test in January 1987 (see Table 4), mobility is more easily manipulated by the provider than transferring. In addition, the mobility item captures less variation in the patient's functional ability to move since patients who can walk are combined with those who must depend upon a wheelchair. Mobility was initially added to the list of items by the Expert Panel, in the expectation that the item might be a good predictor of rehabilitation. However, this was not the case. At each level of mobility, some patients were receiving rehabilitation while others were not.

BDL Items Included

Ineffective Coping. Ineffective coping appears to adequately meet the criteria for inclusion. The item captures variation among patients. The distribution of scores ranged from 9.5% (almost constant intervention required) to 45.6% (no intervention required). This item appears to predict total care needs: it is positively correlated with the ADL items which are generally accepted to be predictive of high care needs (see Table 6). Because this item is based only on the provider's judgment of the level of intervention required, it is more easily manipulated than some of the ADL items, but any negative impact can be minimized by the way the item is used in the categorization and

	Bathing					
Eating	0	1	2	3	4	8
0	17	3 .2%	24 1.9%	215 17%	289 22.8%	0 0%
1	2	0	6 .5%	187 14.8%	107 8.4%	0 0%
2	0	0	3	107 8.4%	30 2.4%	0 0%
3	0	0	0	196	7 .6%	0 0%
4	0	0	0	48	17	0 0%
8	0	0	0	9	0	0

Figure 5 **Bivariate distribution of eating and bathing items. Note: r = .16, scores range from independent (0) to dependent (4).**

	Supervisor Scores on Item				
Data Collector Scores on Item	0	1	2	3	4
0	3 8.3%	1	0	0	0
1	2	1 2.8%	3	0	0
2	2	0	3 8.3%	2	0
3	0	1	3	12 33.3%	0
4	0	1	0	2	0 0%

Figure 6 **Score distributions for grooming item by supervisors and data collectors. Percent agreement = 53.**

Dressing \ Grooming	0	1	2	3	4	8
0	226 17.8%	24	18	2	0	0
1	18 1.4%	23 1.8%	11	3	0	0
2	51 4.0%	49 3.9%	169 13.3%	7	4	0
3	6 .5%	13 1.0%	29 2.3%	511 40.3%	1	0
4	3 .2%	3 .2%	7 .6%	12 .9%	64 5.1%	0
8	0 0%	0 0%	0 0%	12 .9%	1 .1%	0 0%

Figure 7 Bivariate distribution of grooming and dressing items. Note: r = .80, scores range from independent (0) to dependent (4).

Transferring \ Mobility	0	1	2	3	4	8
0	431 34.0%	76	5	6	1	0
1	42 3.3%	28 2.2%	0	6	1	0
2	24 1.9%	32 2.5%	1 .1%	3	0	0
3	39 3.1%	89 7.0%	47 3.7%	46 3.6%	8	0
4	28 2.2%	71 5.6%	197 15.6%	7 .6%	47 3.7%	20
8	0 0%	0 0%	0 0%	0 0%	0 0%	11 .9%

Figure 8 Bivariate distribution of transferring and mobility items. Note: r = .66, scores range from independent (0) to dependent (4).

reimbursement formula. The stability of the item has been addressed through explicit instructions to data collectors regarding supporting data. The item does not appear redundant. Correlations with the ADL items retained are fairly low, ranging from .121 (transferring) to .257 (dressing) and the correlation with potential for injury to self or others is .445 (see Tables 6 and 7). Twenty-four percent of the patients had a higher score on coping than on potential for injury (see Figure 9). While the documentation for this item was not readily available during the Provider Activity Study, the RN in charge of the patient's daily care has been designated as the individual responsible for providing information on this item. If the RN does not have the data it is her/his responsibility to obtain it. The reliability of this item was low (64%) and disagreements occurred at all levels (see Figure 10). However, the data collectors reported that most discrepancies seemed to be the result of using different informers and having different interpretations of "frequent" and "occasional". In addition, some of the differences were reported to be due to actual differences in patient behavior between the first and second reviews. These latter differences are not a reflection on the item, but rather a reflection of the procedures used to check reliability during the Provider Activity Study. They disappeared when reliability was rechecked in January 1987, under conditions where the patient's behavior was stable. Disagreements based on the other factors were also addressed in January by establishing the RN as the informer and by increasing the specificity of the definitions of "occasional" and "frequent" intervention. Rater agreement then increased to 100%.

Potential for Injury to Self or Others. This item is very similar to the coping item with regard to the criteria. The item captures variation among the patients. Distribution of the responses ranged from 13.8% (almost constant intervention required) to 52.8% (no intervention required). Like coping, the potential for injury item does not appear to be redundant. As noted above, it is only moderately correlated with coping, r=.445. Almost 21% of the patients had a higher score on the potential for injury item than on the coping item (see Figure 9). Correlations with the ADL items are fairly low, ranging from .209 (transferring) to .319 (eating) (see Table 6). As illustrated in Figure 11, the reliability of the injury item during the Provider Activity Study was only slightly better than that of the coping item, 67%. As with the coping item, discrepancies seemed to result from different informants, different times of data collection, and ambiguity of the terms "frequent" and "occasional." When these problems were corrected, rater agreement increased to 100% during the follow-up test in January 1987.

BDL Items Omitted

Other Behavioral Problems. The "other behavioral problems" item was omitted because it does not appear to capture variability among patients and because it is not predictive of total care needs. Almost 85% of the patients received a score of zero, no intervention required. Another 8% received a score of 1, occasional intermittent intervention required. While this distribution may reflect the actual distribution, it does not seem useful for separating patients with high care needs from those with low care needs. An examination of Figures 12 and 13 suggests that most of the patients identified as having other behavioral problems would be identified at an equal or higher level by one or both of the other behavioral items. Fewer than 5% of the patients would not be identified on the coping item as needing an equal or higher level of care. Fewer than 7% would be missed by the injury item.

CCL Items Included and Omitted

Unlike the ADL and BDL domains, the continuing care domain included several subsets of items: incontinence (two items); medication (two items); special monitoring and communication (one

Table 6 Correlations Between ADL and BDL Items (Pearson's r)

	Eating	Toileting	Transferring	Dressing	Grooming	Bathing	Mobility
Injury	.319	.296	.209	.281	.364	.071	.136
Coping	.192	.185	.121	.257	.236	.009	.026
Other Behav.	.116	.148	.026	.138	.141	.015	.024

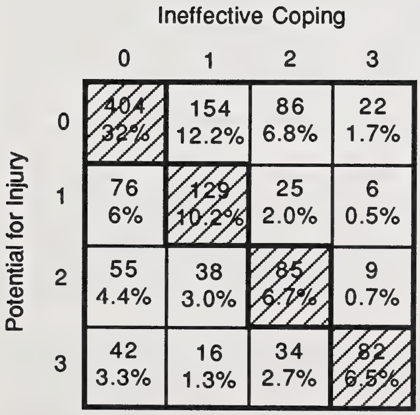
Table 7 **Correlations Between BDL Items (Pearson's r)**

	Injury	Coping	Other Behavior
Potential for Injury	—	.445	.236
Ineffective Coping		—	.340
Other Behavior			—

item each). These subsets were examined separately for their ability to predict resource use. Only the two incontinence items (urinary and fecal incontinence), when taken together, predicted overall resource use and significantly increased the variance in resource use explained by the ADL and BDL items. Therefore urinary and fecal incontinence were retained. Other CCL items were omitted (supporting data are presented and discussed in Section III-C and Appendix E).

Levels of Care

For each of the care domains included in the classification system, the retained indicators were combined to create a single measure of the level of care required. The aim was to define levels of care that ranked patients from low to high on resource use. Nursing resource weights (described in Section II-C) were used as the dependent variable in tests of alternative ways to group patients on the ADL, BDL and CCL indicators selected for inclusion. The empirically-based decisions were validated by the Expert Panel, who confirmed from a clinical perspective that patients with the specified combinations of functional deficits would require the designated level of care. During the process of testing alternative definitions it was necessary (1) to examine the resource use associated with specific indicators, and (2) to identify outliers — values that represented extremely high or low resource use. The results of these analyses are described below.



	0	1	2	3
0	404 32%	154 12.2%	86 6.8%	22 1.7%
1	76 6%	129 10.2%	25 2.0%	6 0.5%
2	55 4.4%	38 3.0%	85 6.7%	9 0.7%
3	42 3.3%	16 1.3%	34 2.7%	82 6.5%

Figure 9 **Bivariate distribution of ineffective coping and potential for injury to self or others items. Note: r = .45, scores range from independent (0) to dependent (3).**

	Supervisor Scores on Item			
Data Collector Scores on Item	0	1	2	3
0	14 38.9%	0	0	0
1	3	4 11.1%	3	0
2	2	4	2 5.6%	0
3	0	0	1	3 8.3%

Figure 10 **Score distributions for ineffective coping item by supervisors and data collectors. Percent agreement = 64.**

	Supervisor Scores on Item			
Data Collector Scores on Item	0	1	2	3
0	14 38.9%	0	0	0
1	6	3 8.3%	0	0
2	3	0	5 13.9%	0
3	1	0	2	2 5.6%

Figure 11 **Score distributions for potential for injury to self or others item by supervisors and data collectors. Percent agreement = 67.**

	Other Behavioral Problems			
Ineffective Coping	0	1	2	3
0	528	41 3.2%	8 0.6%	1 0.1%
1	293	41	3 0.2%	0 0%
2	177	17	34	2 0.2%
3	75	5	7	31

Figure 12 **Bivariate distribution of other behavioral problems and ineffective coping items. Note: r = .34, scores range from independent (0) to dependent (3).**

	Other Behavioral Problems			
Potential for Injury to Self/Others	0	1	2	3
0	586	55 4.4%	23 1.8%	2 0.2%
1	203	28	5 0.4%	0 0%
2	159	16	12	0 0%
3	122	6	11	32

Figure 13 **Bivariate distribution of other behavioral problems and potential for injury to self or others items. Note: r = .24, scores range from independent (0) to dependent (3).**

For each of the classification variables (indicators), the descriptors used to capture variation in care requirements were ordered to reflect increasing amounts of required care. Thus the higher numbers reflect greater need for assistance. However, although most systems using ADLs treat the numbers associated with the descriptors as scores, this was not done because the descriptors do not reflect an interval level of measurement. If the numbers are treated as scores they are easy to combine; however, this not only violates the underlying level of measurement but it also obscures the way in which the numeric scores are obtained. For example, in the RUGs II patient classification system used in long term care facilities in New York State, an ADL score of 5 may be obtained by having two 2s and a 1, by having a 4, 1, and 0, or by having 0, 5, 0, on eating, toileting and transferring, respectively. Thus, three patients with very different functional care deficits could all have the same ADL score. Any differences in care requirements would be obscured since they are not easily traceable in a system that uses only the numeric scores. Therefore, for this project the combination of indicators into level of care measures for each domain was not based on summing the numeric values of the indicators but on defining combinations of descriptors to use in placing patients on an ordinal scale ranging from low to high.

Indicators. ADL, BDL and CCL (incontinence) indicators were examined to determine if they predicted variation in overall resource use and if the ordering of the care requirements from low to high was reflected by corresponding variation in resource use. The average resource use for all indicators except "eating" and "dressing" was ordered as expected. In the case of "eating" and "dressing," however, the order for descriptors "3" and "4" was reversed. When the descriptors were developed prior to data collection, total dependence in eating and dressing was given a rank of "3," while providing constant encouragement so the patient could eat or dress himself, a more time consuming activity, was given a "4." This ordering differed from the ordering on other ADL scales, including the one used in the RUG-II system. The ordering was deemed important, not only because of the relative time involved but also because it provided an incentive to encourage independence. The resource weights, however, were higher for patients classified as totally dependent on eating and dressing items than for those requiring encouragement. Since the weights represent total care, the findings indicate that patients who are classified as dependent on eating or dressing have higher total care needs, i.e., use more nursing resources, than do patients who require encouragement to feed or dress themselves. This finding is not inconsistent with the belief that the time required to teach or continually encourage a person to eat himself is greater than the time required to feed him. That is, it is possible that patients who require encouragement to eat use more nursing time during meals than those who are totally fed, while at the same time requiring less total nursing care for the 24 hour period than their more dependent counterparts.

Because of their relative weighting on resource use, the rankings of the items on eating and dressing were reversed: In the current ADL definition a "3" on eating or dressing means the patient requires constant encouragement to eat or dress, and "4" means the patient requires total assistance to eat or dress. In the case of both incontinence indicators, the two highest care groups, "2 — requires a management program" and "3 — requires a retraining program" were found to be indistinguishable with respect to resource use. Therefore, the 2s and 3s were collapsed into one group on both incontinence items.

Outliers. The procedure used for identifying outliers differed from the typical statistical procedure in that clinical rather than statistical criteria were used to identify extreme cases. First, clinical criteria were used to identify extremely high and extremely low resource use, given the functional level of the patient. Next, these extreme cases were checked in two ways for possible explanations of the high or low resource use. First, the unit forms (Form F, Appendix D) were reviewed to see if the patients in question were listed as having exceptional needs or as changing status during the period of data collection. Second, the Patient Review Form (PRF) was reviewed to ascertain the overall characteristics of the patient that would either justify the level of care he was receiving or identify misclassification.

Using this procedure, 42 outliers were identified, 11 in the lowest ADL group, 9 in the medium-low level, 4 in medium, 6 in medium high and 12 in the high level (see Table 8). None of those in the low category were eliminated because neither Form F nor the PRF indicated any reason for their elimination. In each of the other categories, however, patients were identified either as having been newly admitted or discharged during the study period or as having been out on a work pass or visits for extended periods during the 3-day data collection period. All of these cases (16) were eliminated since the resource weights were unduly inflated or diminished by the procedure used to weight time for patients who were absent during part of the data collection period. (For an explanation of the weighting procedure see Appendix D, Form F.)

Table 8 shows the weights and distribution of the 16 cases eliminated from the sample. The majority were from the high ADL category. The remaining 26 patients were retained in the sample for the rest of the data analysis, though their weights, in some cases, were as low as the weights of those who were eliminated. On the other hand, all of the extremely high weights (those over 400) were eliminated. The removal of these cases improved the homogeneity of the categories. Moreover, the remaining 1254 cases were distributed around the means of the categories without any remaining statistical outliers.

ADL Level of Care. The ADL level of care was derived by combining the four indicators — eating, dressing, toileting and transferring — as follows:

1. Low: No 2s, 3s or 4s on any indicator
2. Medium Low: No 3s or 4s on any indicator
3. Medium: May have 3s on eating, toileting, transferring or dressing
4. Medium High: 4 or 8 on eating, dressing, toileting or transferring but does not meet requirements for "High"
5. High: Must have 4 or 8 on eating or dressing *and* 4 or 8 on either toileting or transferring

The definitions are stated in terms of the conditions sufficient to place a patient in a particular group. They are not exhaustive of the possible combinations of indicators. For example, if a patient has a score of three on any of the four indicators and does not have a four or eight on any (which qualifies for the higher level), the patient would be ranked as medium on ADL level. The medium level thus includes patients with only one score of 3 and 1s or 2s on the other indicators, or those with scores of 3 on two, three or four indicators. A more explicit listing of combinations is included with the decision rules for manually determining a patient's category from the review data (see Appendix E).

The distribution of patients in the five ADL levels was bimodal, with higher numbers of patients at the extremes (low and high) and the lowest number in the middle (medium) (see Table 9). The mean nursing resource weights (RNs, RNAs and NAs combined) for ADL levels are also shown in Table 9. The means increased from 37.30 for patients with low ADLs to 107.33 for patients with high ADLs. The difference between ADL levels was significant (F = 219.8, p = 0.00). The standard deviation was larger than desired, in that it allowed overlapping of the levels. The tests for homogeneity of variance show that there was also a significant difference in the variance within each level — i.e., the variances were not homogeneous. However, the 95% confidence intervals around the means are not overlapping. In 95% of the samples drawn from the same population the mean values would be within the specified intervals and therefore the relative rank of the groups would remain the same (Table 10). ADL level explained 41% of the variance in resource use.

BDL Level of Care. The BDL level definition was derived by combining two indicators — potential for risk to self or others and ineffective coping — as follows:

1. Low: 1 on risk potential indicator *or* 0 on both indicators
2. Medium: 2 on risk potential *or* 1 on ineffective coping
3. High: 3 on risk potential *or* 2 on ineffective coping
4. Very High: 3 on risk potential *and* 2 on ineffective coping *or* 3 on ineffective coping.

The distribution of patients by BDL level is shown in Table 11. Of the 1242 patients in the sample, 469 (37.8%) exhibited a low level of problem behavior. (The total number of patients varies from one analysis to another since cases with missing data have been dropped.) The number of patients decreased as the level of care required increased: 370 (29.8%) ranked medium on BDLs, 249 (20.0%) ranked high and 154 (12.4%) ranked very high.

Table 8 Outliers Removed From Sample by ADL Level and Weighted Nursing Time

	Outliers Removed		
ADL Level	N per Group	Nursing Weights Low	 High
Low	0		
M-Low	4	3,13,14	198
Med	1	12	
M-High	3	2,7	536
High	8	2,6,12,27,36	398,431,540
TOTAL N	16	11	5

Table 9 **Mean Nursing Resource Use for Level of Care Required by ADLs (Outliers Removed)**

ADL Level	N	Resource Use Measure	
		$\overline{X}$	S.D.
Low	281	37.30	23.55
M-Low	207	47.45	24.68
Med	163	75.22	34.52
M-High	217	83.12	37.73
High	377	107.33	39.04
TOTAL	1245 *	73.15	32.98

ANOVA F = 219.87 p = 0.000

*Number of missing cases = 9

Tests for Homogeneity of Variance

Bartlett-Box F = 28.29 p = .0000

Table 10 **95% Confidence Interval Around the Mean Nursing Weights for ADL Level of Care**

ADL Level	Nursing Resource Use	
	$\overline{X}$	95% Confidence Interval Around Mean
Low	37.30	34.53 to 40.06
M-Low	47.45	44.07 to 50.83
Med	75.22	69.88 to 80.56
M-High	83.12	78.08 to 88.17
High	107.33	103.38 to 111.28

Table 11 **Mean Nursing Resource Use for Level of Care Required by BDLs (Outliers Removed)**

BDL Level	N	Resource Use Measure	
		$\overline{X}$	S.D.
Low	469	58.60	39.78
Med	370	72.02	39.40
High	249	83.60	40.78
Very High	154	103.75	45.38
TOTAL	1242 *	73.21	43.17

ANOVA F = 54.81 p = 0.000

*Number of missing cases = 12

Tests for Homogeneity of Variance

Bartlett-Box F = 1.710 p = 0.163

The nursing resource use weights for BDL levels are also shown in Table 11. As expected, the weighted nursing time provided to patients increased as level of care requirements increased. The difference between the means for BDL levels was significant (F=54.8, p = .000). Although the standard deviations were relatively large, the variances were homogeneous as confirmed by the non-significant Bartlett — Box F test (F=1.7; p = 0.16). (Note: A significant F test indicates significantly different variances — non-homogeneity.) In contrast to the ADL level the BDL level explained only ll% of the variance in nursing resource use.

Continuing Care Level (Incontinence Level). Incontinence level was derived by combining the two incontinence indicators — urinary incontinence and fecal incontinence — as follows:

0. None: Not incontinent. Has neither urinary nor fecal incontinence (0 on both indicators)
1. Low: Has occasional incontinence of bladder or bowel (1 on either or both incontinence indicators)
2. Medium: Has incontinence of bowel or bladder requiring either management or a retraining program (2 or 3 on either incontinence indicator)
3. High: Has incontinence of both bowel and bladder requiring either a management or retraining program (2 or 3 on both incontinence indicators)

The nursing resource weights associated with incontinence levels are shown in Table 12. The mean weighted nursing times increased from 47.42 for patients with no incontinence to a high of 102.50. The largest increment in resource use was between no incontinence and occasional incontinence. Incontinence level explained 27% of the variance in resource use.

B. Classification Categories

Category Definition

Seven categories were derived from the interrelationships among ADL, BDL and incontinence levels of care. Initially a matrix was formed to display all possible combinations of ADL, BDL and incontinence levels and the mean resource use (mean weighted nursing time) of patients with each combination of care requirements (see Table 13). By examining the resource weights within cells of the matrix and combining cells with similar weights and clinical characteristics, seven categories were defined as shown in Table 14. This grouping procedure reduced the 80 cells in the ADL X BDL X Incontinence matrix to a more manageable number of patient categories. For all of the categories, except Category A, the category definition incorporates several combinations of ADL, BDL and incontinence levels.

Category A includes patients with low ADL, low BDL and no to medium incontinence problems. These are patients with little or no functional impairment who require minimal supervision, although they may require a supportive environment to function at their potential levels. Such characteristics are found in patients who are being prepared for discharge to independent living or who require supervision to prevent deterioration in their condition.

Two clusters of patients form Category B: those with a low ADL level and a medium to high BDL level or those with a medium-low ADL level and a low to medium BDL level. Patients with the highest level of incontinence — incontinence of both bowel and bladder — are excluded. These combinations of ADLs and BDLs require about the same levels of care and are seen, for example, in patients having early stage degenerative disease, patients with minor physical handicaps that require restorative rehabilitation or patients with mild cognitive impairment that might be associated with early stage Alzheimer's disease or mild mental retardation. Note that higher BDL impairment must be offset by low impairment in ADLs in this category.

Three clusters of patients comprise Category C. As in Category B the clusters represent different combinations of ADL and BDL levels: the lowest ADL requirements with the highest BDL, medium low ADL with high BDL, and medium ADL with low or medium BDL levels. As in Category B there is a trade-off between ADL and BDL deficits. However, for Category C the BDL levels are higher for any given ADL level than they are for Category B. Again, patients with the highest level of incontinence are excluded. This category reflects the progression of ADL/BDL deficits, starting with Category A. Patients in this category might be those with early stage multiple sclerosis who require little physical care but are emotionally labile or stroke patients with moderate physical deficits who need emotional support.

Category D, the "swing" category, includes the largest number of combinations of ADLs, BDLs and CCLs. First, it includes those patients whose combined ADL and BDL levels would have put

Table 12 **Mean Nursing Resource Use for Level of Care Required by Incontinence Levels (Outliers Removed)**

Incontinence Level	N	Resource Use Measure	
		$\overline{X}$	S.D.
None (0)	501	47.42	29.50
Low (1)	205	75.16	41.86
Med (2)	234	88.11	44.33
High (3)	304	102.50	37.05
TOTAL	1244 *	73.11	43.14

ANOVA F = 160.40 p = 0.000

*Number of missing cases = 10

Tests for Homogeneity of Variance

Bartlett-Box F = 22.69 p = .0000

them in Category A, B or C but who have incontinence of both bowel and bladder. In addition, patients with no or only occasional incontinence are included if they have medium low ADLs and very high BDLs, medium ADLs and high BDLs or medium high ADLs and BDLs ranging from low to high. For example, paraplegics requiring retraining for bowel and bladder control might be in Category D though they would be in Category C after the retraining is completed. Patients with Parkinson's disease or Huntington's Chorea might be found in Category D, depending on the stage of the degenerative process and their adjustment to it.

Category E includes patients representing four different combinations of ADL, BDL and CCL levels. To be included in this category patients with lower ADL requirements must have either medium to high continuing care requirements for incontinence or very high BDL requirements. Patients with medium-low ADLs are in this category *only* if they have *very high* BDL requirements and need management or retraining for urinary incontinence. Patients with somewhat higher (medium) ADL and only somewhat lower (high) BDL requirements and bladder management problems are also in this category while those with no or low incontinence are in the category only if they have very high BDL needs. Patients with even higher ADL requirements (medium high or high) may be in Category E, whether they require management of urinary incontinence or have no incontinence, if they do not have very high BDL requirements. Patients fitting these descriptions are the very frail confused elderly, the alcoholic with Korsakoff's syndrome, the brain injured patient, or the severely handicapped arthritic or old stroke patient.

Category F includes primarily patients with heavy physical care requirements — those with the highest ADL impairments, who also have some incontinence problems. Without the highest ADLs, a patient could be in Category F if the physical care requirements (ADL and Incontinence) are complicated by behavioral problems. Patients with very high BDLs are not included, however, unless they have lower ADL requirements. Patients found in Category F may be senile or have advanced dementias.

Patients with high ADLs and the severest behavioral problems are in Category G. This category includes only patients with the highest BDL requirements and medium high or high ADLs. Those with medium high ADL requirements also must have some incontinence though those at the highest ADL level are in Category G even without incontinence problems. These care requirements are found in patients who have advanced neurological diseases such as multiple sclerosis, or dementia severe enough to require two people to provide physical care (dressing, toileting, etc.).

A summary of the care requirements for each category of patients is included in Table 15. The descriptions (in parentheses) are the sufficient conditions that place individuals at a given care level stated in terms of the indicators that compose the level of care definitions. Patients may have lower levels on one indicator if they meet the inclusion criteria on another. Space precludes enumerating all possible combinations of indicators for each level of care required for ADLs, BDLs or incontinence.

Table 13 **Mean Weighted Nursing Time by ADL Level, BDL Level & Incontinence Level (N = 1239)**

		Incontinence Level			
ADL LEVEL	BDL LEVEL	0 None	1 Low	2 Med	3 High
1. Low	1. Low 31.26	30.68 (138)	37.17 (13)	26.06 (10)	86.47 (1)
37.20	2. Med 45.34	41.51 (58)	48.10 (12)	68.39 (6)	70.68 (2)
	3. High 44.11	45.46 (25)	40.50 (3)	32.74 (2)	---
(278)	4. V High 52.12	40.28 (6)	16.96 (1)	---	158.35 (1)
2. M-Low	1. Low 42.79	41.97 (68)	42.79 (14)	46.42 (10)	52.66 (2)
47.45	2. Med 42.44	39.15 (41)	45.94 (9)	51.04 (8)	77.04 (1)
	3. High 57.18	53.48 (22)	61.30 (9)	64.57 (6)	---
(207)	4. V High 69.40	65.55 (11)	75.58 (2)	76.91 (4)	---
3. Med	1. Low 60.70	64.19 (17)	64.70 (10)	47.66 (11)	71.72 (4)
75.22	2. Med 64.51	59.29 (17)	66.78 (14)	76.08 (10)	60.01 (13)
	3. High 80.52	59.36 (7)	72.03 (6)	90.59 (14)	99.88 (3)
(163)	4. V High 103.04	101.29 (11)	71.57 (2)	88.94 (8)	115.23 (16)
4. M-High	1. Low 71.55	64.46 (22)	74.12 (15)	70.51 (19)	84.04 (11)
82.90	2. Med 80.60	70.63 (16)	83.20 (24)	91.53 (8)	81.01 (23)
	3. High 84.29	59.61 (13)	69.47 (11)	93.81 (8)	111.49 (15)
(215)	4. V High 111.54	62.32 (7)	115.43 (3)	127.80 (5)	128.31 (15)
5. High	1. Low 106.22	90.25 (9)	107.61 (18)	104.79 (27)	109.43 (49)
107.33	2. Med 105.60	91.07 (6)	107.28 (19)	119.11 (32)	97.91 (49)
	3. High 104.77	124.27 (4)	109.86 (13)	105.65 (31)	101.76 (57)
(376)	4. V High 116.48	---	101.85 (7)	112.19 (14)	120.45 (41)

Clinical Description of Patients in the Categories

Two methods were used to determine whether the categories contained clinically meaningful groups of patients. First, the Expert Panel were asked to identify types of patients that would exemplify the combinations of care requirements found in the seven categories. These examples are listed in Table 15. The examples represent three ways of characterizing patients:

(1) by diagnoses or medical conditions that produce common functional deficits,

(2) by symptoms, and

(3) by rehabilitation or other services that they require.

The examples of patient types are not intended to be an exhaustive list but to provide evidence that the combination of functional impairments could be observed in one or more types of patients. Specific diagnoses are *not* identified with specific categories. Instead, patients with similar diagnoses can be found in all categories depending on the severity of their functional impairment. That is, the combination of the patient's (1) stage in the disease process, (2) stage in the rehabilitation process and (3) adjustment to the functional limitations will determine nursing care requirements and placement in the categories.

A second method of checking the clinical characteristics of patient groups was to examine

Table 14 Matrix for Classifying Patients Based on ADL, BDL and CCL (Incontinence) Levels

		CCL (Incontinence) Level			
ADL LEVEL	BDL LEVEL	0 None	1 Low	2 Med	3 High
1. Low	1. Low	A	A	A	D
	2. Med	B	B	B	D
	3. High	B	B	B	D
	4. V High	C	C	C	D
2. M-Low	1. Low	B	B	B	D
	2. Med	B	B	B	D
	3. High	C	C	C	D
	4. V High	D	D	E	E
3. Med	1. Low	C	C	C	D
	2. Med	C	C	C	D
	3. High	D	D	E	E
	4. V High	E	E	F	F
4. M-High	1. Low	D	D	E	E
	2. Med	D	D	E	E
	3. High	D	D	E	E
	4. V High	F	G	G	G
5. High	1. Low	E	F	F	F
	2. Med	E	F	F	F
	3. High	E	F	F	F
	4. V High	G	G	G	G

Table 15 Patient Classification Categories with Descriptions of Functional Characteristics and Examples of Patient Types

Category		Definition (Functional characteristics)	Examples of Patient Types
A		Low ADLs (Independent with no or only *minor* assistance in eating, dressing, toileting, transfer) and Low BDLs (No intervention required for coping and potential for injury or general observation only for potential injury) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Pre-discharge patients to independent living, E.g. potential candidates for Lodge; Patients who have been rehabilitated to the point of being able to live outside the institution - Compassionate admissions - Low care with potential for medical complications or regression if discharged - Limited mental impairment that decreases ability to live independently, but without major behavioral concerns - Well adjusted, independent COPD who can manage own oxygen
B	(i)	Low ADLs (Independent with no or only *minor* assistance in eating, dressing, toileting, transfer) and Med-Hi BDLs (Close to constant intervention for potential injury or low to medium support for coping) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Mentally retarded - Early Alzheimer's disease (non-disruptive wanderer) - Organic Brain Syndrome - Young handicapped (e.g., trauma patients) receiving restorative care - Persons with degenerative diseases (e.g., early stages arthritis, chronic obstructive pulmonary disease (COPD))
		OR	
	(ii)	0-Low ADLs (Independent with no or only intermittent assistance or supervision in eating, dressing, toileting, transfer) and Low-Med BDLs (No intervention to intermittent intervention for potential injury or low support for coping) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Alzheimer's disease (non-disruptive wanderer) - Organic Brain Syndrome - Young handicapped (e.g., trauma patients) who have learned to care for self but need bridge to community - Persons with degenerative diseases (early stages arthritis, COPD)
C	(i)	Low ADLs (Independent with no or only *minor* assist in eating, dressing, toileting, transfer) and V High BDLs (intervention every 15 mins. for risk of injury *and* assistance with coping *or* intense intervention for coping) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Light physical care patients with major behavioral needs - Behavior modification - Depressed and/or agitated - Early stage multiple sclerosis (M.S.) patients - Independent COPD who is anxious and needs emotional support - Parkinson's patients who are beginning to have symptoms
		OR	

	(ii)	M-Low ADLs (Independent with no or only intermittent assistance or supervision in eating, dress, toilet, transfer) and High BDLs (Constant intervention for potential injury or medium level of support for coping) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Deteriorating Alzheimer's or Organic Brain Syndrome
		OR	
	(iii)	Med ADLs (Constant supervision/ encouragement to dress or eat or 1-person assist with toilet or transfer) and Low-Med BDLs (No intervention to intermittent intervention for potential injury or low support for coping) and 0-Med Incont. (No or occasional incontinence, routine catheter/ostomy care, or single incontinence with management/retraining)	- Cerebral Vascular Accident (CVA) with medium physical deficit and in need of emotional support - Patients with other diagnoses who need rehabilitation - Organic Brain Syndrome (e.g., senile patients who need constant supervision or encouragement to remain active) - Dementias, Alzheimer's
D	(i)	Low ADLs (Independent with no or only *minor* assistance in eating, dressing, toilet, transfer) and Low-V High BDLs (No to close and constant intervention for potential injury or no to intense intervention for coping) and High Incont. (Incontinence of bowel *and* bladder requiring retraining/management)	- Paraplegics having retraining for bowel/bladder (B/B) control - Independent, demanding MS or newly admitted - CVA (younger)
		OR	
	(ii)	M-Low ADLs (Independent with no or only intermittent assistance or supervision in eating, dress, toilet, transfer) and Low-High BDLs (No to constant intervention for potential injury or no to medium support for coping) and High Incont. (Incontinence of bowel *and* bladder requiring retraining/management)	- Paraplegics having retraining for B/B control - Multiple Sclerosis - CVA (younger) - Traumatic brain injury
		OR	

	M-Low ADLs (as above) and V High BDLs (Intervention every 15 mins. for risk of injury *and* assistance with coping or intense intervention for coping) and 0-Low Incont. (No incontinence or routine catheter/ostomy care or occasional incontinence)	- Light CVAs - Parkinson's - COPD - Organic Brain Syndrome - Palliative Care
	OR	
(iii)	Med ADLs (Constant supervision/ encouragement to dress or eat or 1-person assist with toilet or transfer) and Low-Med BDLs (No intervention required or intermittent intervention for potential injury or low support for coping) and High Incont. (Incontinence of bowel *and* bladder requiring retraining/management)	- Brain tumors - Traumatic brain injury - MS - CVA
	OR	
(iv)	Med ADLs (as above) and High BDLs (constant intervention for potential injury or medium level of support for coping) and 0-Low Incont. (No incontinence or routine catheter/ostomy care or occasional incontinence of bowel or bladder)	- Traumatic brain injury - MS - CVA
	OR	
(v)	M-High ADLs (Total assist on eating and/or dressing or patient is tube fed and/or bedridden; or 2-person assist with toilet and/or transfer or patient is not transferred and/or does not use toilet) and Low-High BDLs (No to constant intervention for potential injury or no to medium support for coping) and 0-Low Incont. (No incontinence or routine catheter/ostomy care or occasional incontinence of bowel or bladder)	- Huntington's Chorea

E	(i)	Med-Low ADLs (Independent without/with intermittent assist/supervision in eating, dressing, toilet, transfer) and V. High BDLs (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping) and Med-High Incont. (Single or double incont. requiring retraining/management)	- Very old/feeble - Frail, confused, anxious elderly - Parkinson's - CVA - Alzheimer's disease, agitated
		OR	
	(ii)	Med ADLs (Constant supervision/ encouragement to dress or eat or 1-person assist with toilet or transfer) and High BDLs (Constant intervention for potential injury or med level support for coping) and Med-High Incont. (Single or double incont. requiring retraining/management)	- Old alcoholic with Korsakoff's syndrome - Tertiary syphilis
		OR	
		Med ADLs (as above) and V High BDLS (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping) and 0-Low Incont. (No to occasional incontinence of bladder or bowel)	- Brain injury - Double amputee - CVA receiving restorative rehabilitation and requiring constant supervision - COPD with other physical problems - Blind-deaf patients - Brain injury - Huntington's Chorea, now having difficulty swallowing - Diabetic
		OR	
	(iii)	M-High ADLs (total assist on eating and/or dressing or patient is tube fed and/or bedridden; or 2-person assist with toilet and/or transfer or patient is not transferred and/or does not use toilet) and Low-High BDLs (No to constant intervention for potential injury or no to med support for coping) and Med-High Incont. (Single or double incont. requiring retraining/management)	- Palliative care - Non-disruptive patients with incontinence - CVA receiving restorative care - Rheumatoid Arthritic - High level quadriplegic (C-5)
		OR	

	(iv)	High ADLs (Total assist or 8's on eating or dressing *and* 2-person assist or 8's on toilet or transfer) and Low-High BDLs (No to constant intervention for potential injury or no to med support for coping) and 0 Incont. (No incontinence)	- Advanced Rheumatoid Arthritic - Deteriorating MS - Aged with congenital orthopedic problems, e.g. Scoliosis Osteogenesis Imperfecta Old polio
F	(i)	Med ADLs (Constant supervision/ encouragement to dress or eat or 1-person assist with toilet or transfer) and V High BDLs (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping) and Med-High Incont. (Single or double incontinence requiring retraining/management)	- Amyotrophic lateral sclerosis (ALS) - MS - Agitated Alzheimer's/dementia (environmentally disruptive wanderer)
		OR	
	(ii)	M-High ADLs (total assist on eating and/or dressing or patient is tube fed and/or bedridden; or 2-person assist with toilet and/or transfer or patient is not transferred and/or does not use toilet) and V High BDLs (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping) and 0 Incont. (No incontinence)	- Morbid obesity - Palliative care
		OR	
	(iii)	High ADLs (Total assist or 8's on eating or dressing *and* 2-person assist or 8's on toilet or transfer) and Low-High BDLs (No to constant intervention for potential for injury or no to med support for coping) and Low-High Incont. (Occasional incontinence to single to double incontinence requiring retraining/management)	- Advanced dementias (incontinent) - Bedridden Non-disruptive Non-mobile with incontinence

G	(i)	M-High ADLs (total assist on eating and/or dressing or patient is tube fed and/or bedridden; or 2-person assist with toilet and/or transfer or patient is not transferred and/or does not use toilet)	- Severe dementia requiring high physical care - Advanced neurological diseases, e.g. MS ALS Huntington's Chorea - Palliative care
		and	
		V High BDLs (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping)	
		and	
		Low-High Incont. (Occasional incont. to double incont. requiring retraining/management)	
		OR	
	(ii)	High ADLs (Total assist or 8's on eating or dressing *and* 2-person assist or 8's on toilet or transfer)	- Dysfunctionally angry or grieving quadriplegic - Severe rheumatoid arthritis
		and	
		V High BDLs (Intervention every 15 minutes for risk of injury *and* assistance with coping *or* intense intervention for coping)	- Dementia resulting from drug abuse
		and	
		0-High Incont. (No incontinence or occasional incont. to single to double incont. requiring retraining/management)	

the data on patients included in the Provider Activity Study. In addition to the classification variables, additional items describing patients' health status were included in the PRF to provide such a check of the categories. The medical diagnosis, medical condition, and mental status of the patients in the seven categories are described below.

Medical Diagnosis. The four most frequently occurring diagnoses in the sample were in the following ICD-9 disease categories: neurological motor dysfunction, circulatory diseases, musculoskeletal disability, and mental problems. Table 3, Appendix D, shows the distribution of these types of diagnoses by category. The figures show the percent of patients in each category with each diagnosis. Patients could have more than one diagnosis, so the percentages are not additive.

Categories F and G have the highest proportion of patients with neurological dysfunction (64.5% and 56.5%, respectively) and category A the lowest (24.4%). In contrast, F and G have the lowest proportion of patients with circulatory problems (33.6% and 34.1%, respectively) and category A has the highest (55.5%). Categories F and G also have the lowest proportion of patients with musculoskeletal disability (37.9% and 31.8%, respectively).

Medical Condition (Comatose & terminally ill patients). Only 14 terminally ill patients and 1 comatose patient were identified on the PRFs and remained in the sample after outliers and cases with missing data were removed. The comatose patient was placed in category F, as were nine of the 14 (64.3%) terminally ill patients, which is appropriate considering the care requirements of such patients. Three of the terminally ill were in the highest category, G, indicating that they were ranked very high on BDL level, requiring intensive assistance in coping with their situation. The remaining two cases were placed in categories B and C, indicating a high level of independence despite the severity of their illness.

Mental Status. The two items "Memory" and "Orientation" were intended to provide an assessment of the patient's mental status. During the data collection, both items were found to be unreliable with overall agreements of only 66%. However, all disagreements occurred on the degree of impairment a patient exhibited. There were no disagreements about the absence of memory loss or disorientation. Therefore, the proportion of patients exhibiting no memory loss or confusion was used to describe the mental status of each class of patients. The level of care required is inversely related to the percentage of patients exhibiting no memory loss (see Table 4, Appendix D). As the level of care increases from lowest (A) to highest (G), the percentage of patients with no memory loss decreases from 63.4% to ll.8%. A similar relationship is observed between level of care and confusion. Only 14.1% of the patients in category G are not confused, whereas 78.7% of those in category A are not confused.

Both the Expert Panel review and the statistical analysis also provided a check of the exhaustiveness of the categories. All patients currently found in the system, including those with special needs such as the terminally ill, the young physically handicapped, and the mentally dysfunctional elderly, were placed in one of the seven categories.

Other Domains and Indicators

Other CCL Items. The number of medications ordered for patients did not vary across the seven ABCAT categories (r = .05) (see Table 5, Appendix D). However, within each category nursing resource use increased with increasing numbers of medications. In each category those patients with more than 8 medications used more resources on the average than those with lower numbers of medications (Table 6, Appendix D). Though the increase in resource use indicates that patients receiving more medications are heavier care patients, the medication indicator explained only 1% of the variance in resource use not already explained by ADL, BDL and Incontinence levels. Moreover, rewarding the use of large numbers of medications is not desirable. Therefore, the number of medications is not included as an indicator in the classification categories.

The remaining items in the Continuing Care Domain — medications requiring special monitoring, other special monitoring and communication problems — did not significantly increase the explained variance in resource use. Therefore these items were not included in the classification categories.

TIPS. Two variables were created from the list of therapeutic interventions and programs. All nursing interventions were summed to create a variable with a range of 0 to 10. The rehabilitation interventions were also summed and resulted in a variable with a range of 0 to 4. Most of the patients (65.9%) did not receive any of the nursing treatments, as defined in the PRF; 25.3% had 1 treatment and the remaining 8.8% had more than 1. No one was receiving more than 5 treatments. Although patients in the higher categories tended to receive more treatments, as would be expected, the difference was not significant. Moreover, the number of nursing interventions did not explain any variation not already explained by the functional levels (see Table 7, Appendix D), even when type of facility was controlled. The number of rehabilitation programs also explained no additional variation (see Table 8, Appendix D).

Family Participation In Care. As shown in Table 9, Appendix D, of the 1224 patients on which data were available for this item, 731 (59.7%) had family members or friends who frequently participated in their care. The participation was high in all categories, although category A had the highest percentage of frequent family participation (73.3%). Family participation was not found to explain variation in resource use and therefore is not included as a classification variable.

In summary, the seven categories, A through G, derived from the ADL, BDL and incontinence levels of care, are the set of categories that best explain nursing resource use. The category weights and the statistical properties that justify their use as the nursing component of the Alberta Patient Classification System for Long Term Care Facilities are discussed in the next section. The categories hereafter are labelled ABCAT categories.

C. Properties of the Case-Mix Classification System

The basic premise underlying the development of a patient classification system is that different types of patients have different care requirements and therefore place different demands on facility resources. A classification system should group patients according to similarities and differences in care requirements so that a defined group is comparable over time and place. Specifically, a set of categories that group patients according to care requirements should meet the following criteria:

1. **Homogeneity:** Patients classified in the same group should be more similar to each other in their resource use than to those classified in different groups. That is, the categories should differ in their mean resource use, should have relatively lower within group variation in resource use, and should have equal variances.
2. **Discriminability:** The classification system should produce a relatively balanced distribution of patients across the categories in order to maximize its discrimination power. That is,

the greater the tendency of a grouping system to place a majority of patients into a single category, the lower the utility of the system. Little information is gained from a scheme that identifies only a small number who differ from the majority. This is particularly relevant if the underlying phenomenon is continuous and patients are assumed to be distributed over all ranges. If, for example, nursing needs are continuous, the better the classification system represents that continuum the greater its validity. With a continuous phenomenon, there is no gain from unbalanced classes: the larger classes can be refined to provide balance and improve explanatory power.

3. **Ordinality (Ranking):** The categories should be ordered from high to low on the measure of resource use and this ranking should be relatively stable across facilities and over time.
4. **Predictive Validity:** With categories that rank patients according to expected resource use, a case-mix measure based on these categories should order facilities according to the "heaviness" of resources required by the mix of patients in the facility. To meet the criterion of predictive validity the categories should "predict" the order of facilities on a measure of resource use.

Data from the Provider Activity Study were used to assess a set of classification categories for long term care case-mix measurement according to established criteria. The categories were revised until they met the methodological, clinical, and administrative criteria to the satisfaction of the study team, Expert Panel, Advisory Committee and Steering Committee. The homogeneity, discriminability, ordinality and predictive validity of the final version of the nursing care categories (ABCAT) are described in this section.

Homogeneity

To test the homogeneity of categories, the following questions were addressed:

1. How much variance in resource intensity is explained by the categories?
2. What is the variation within each group?
3. Is the variance in resource use across categories homogeneous?

Seven categories, A through G, were derived by combining ADL, BDL and incontinence levels of care. The mean nursing resource use for each category is shown in Table 16. The means increase monotonically across the seven groups, from a low of 30.92 for patients in Category A to a high of 119.20 for those in Category G. The means are significantly different (F = 183.89, p = .000). There is nearly a four-fold increase in relative resource intensity from Category A to Category G. Moreover, the increases in resource intensity from one category to the next are uniform. The within category variance represented by the standard deviations, is not large. However, the categories do overlap in their distribution of resource use. Even with the overlapping, the categories explain 49% of the variance in resource use as measured by weighted minutes of nursing care per day. Some of the variation within categories is explained by facility type: auxiliary hospitals have consistently higher resource use than nursing homes or combined facilities (Table 17). The addition of facility type increases the R^2 to 51.5%.

The test for homogeneity of variance, Bartlett-Box F, is statistically significant, indicating that some categories are more heterogeneous in their resource use than others. As shown in Table 16, the standard deviations (S.D.) increase monotonically from category A through G, indicating that the higher the mean resource use, the greater the heterogeneity. It is clear, then, that within-category variance in resource use (weighted nursing care per day) is positively correlated with the mean level of resource use. (This property is often observed in medical care phenomena — the larger the average use of resources, the greater the likelihood of extreme values, both low and high; lower resource use tends to be truncated on the low side, thus reducing the overall variance in low intensity classes of patients.) While this is certainly not an ideal result, the ordering and reasonable tightness of the resource use distributions are deemed to be quite acceptable. Further efforts to reduce within-group heterogeneity would create a larger number of categories, which would increase the complexity and administrative burden of classification. The trade-off between homogeneity and simplicity is a matter of judgment; the choice of an acceptable trade-off was made with the assistance of the Expert Panel and the Advisory and Steering Committees.

In sum, the classification system comprises a set of ordered categories that explain half of the variance in resource use. This compares quite favorably with other long term care patient classification systems (Hornbrook, 1987).

Discriminability

The sample of cases is distributed reasonably well across the seven categories. The lowest frequency category, G, contains nearly 7% of the

Table 16 Mean Nursing Resource Use for ABCAT Categories

Categories (ABCAT)	N	Weighted Nursing Time (RN, RNA, NA)		
		$\bar{X}$	S.D.	Relative Weight**
A	161	30.92	18.36	1.00
B	256	43.21	23.63	1.40
C	123	59.68	24.47	1.93
D	151	69.88	31.78	2.26
E	137	89.57	34.88	2.90
F	326	105.12	37.90	3.40
G	85	119.20	44.32	3.86
TOTAL	1239 *			

ANOVA F = 183.89 p = 0.000

Tests for Homogeneity of Variance

Bartlett-Box F = 28.053 p = .0000

*Number of missing cases = 15

$$**\text{Relative weight} = \frac{\text{Mean Resource Use for Category i}}{\text{Mean Resource Use for Category A}} \qquad i = A, B, ..., G.$$

Table 17 Mean Nursing Resource Use By Category and Facility Type

Categories (ABCAT)	N	Nursing Homes and Units	Auxiliary Hospitals	Combined Facilities (Integrated)
		(N)	(N)	(N)
A	161	27.01 (128)	58.17 (16)	34.70 (17)
B	256	37.62 (170)	57.40 (37)	51.91 (49)
C	123	50.31 (65)	72.27 (32)	67.60 (26)
D	151	58.77 (74)	82.64 (45)	77.61 (32)
E	137	80.17 (59)	102.42 (55)	82.97 (23)
F	326	84.56 (32)	108.53 (169)	105.79 (125)
G	85	82.97 (7)	129.64 (58)	101.61 (20)
TOTAL	1239	535	412	292

cases, while the highest frequency category, F, contains only 26% of the cases. The other five categories are relatively close in size. This balance means that all of the categories are important in describing the case-mix of long term care facilities. Moreover, the weights are distributed well across the interval from low to high intensity: there is no large unbalanced gap in the distribution of relative weights. This reveals that the categories are a good description of an underlying continuum of care needs in the long term care population.

Ordinality (Ranking)

To facilitate understanding of the properties of the classification system, the rankings of the categories *across types of facility* were examined. The data in Table 17 show that the first six categories are consistently ranked across all three facility types — nursing homes and units, auxiliary hospitals, and combined facilities. However, the two highest intensity categories, F and G, reverse their ranks in nursing homes and combined facilities. That is, in nursing homes and combined facilities the mean weighted nursing time for patients in Category F is higher than for patients in the heavier care category, G. This appears to be a function of small numbers of cases and the reduced scope of services provided in these facilities for patients in the highest intensity category. That is, nursing homes are not staffed to treat Category G patients, so there are relatively few of these patients in this type of facility, and those who are there receive less intensive care than their counterparts receive in auxiliary hospitals.

Rankings of the categories across facilities grouped by ownership (Table 18) reveal a consistent order of resource use by categories in private and voluntary facilities. Categories F and G are reversed for district facilities, probably for the reasons cited previously since district facilities in this sample are primarily nursing homes.

Rankings of the categories on the various components of resource use — other services provided by different types of nursing and other personnel — as compared to total resource use were also computed. This analysis used Pearson's r to examine the correspondence among the resource use measures. Further, the consistency of rankings on the empirically derived resource use measures was checked with clinical impressions of the relative resources appropriate for the seven categories of patients. Table 19 shows the high correlation (r = .98) between mean resource use by different types of nursing personnel across the seven categories. This reveals that the higher intensity categories require more of *all* types of nursing care.

Focusing on non-nursing care, the categories are not ranked (ordered) from low to high intensity of rehabilitation resource use as they are on intensity of nursing resource use. That is, rehabilitation resource intensity shows little variation across types of patients grouped by ADL, BDL and incontinence care requirements (Table 20). This is not surprising since rehabilitation care requirements were not found related to ADL, BDL or incontinence items. That is, cross-classifying care requirements for ADL, BDL and incontinence indicators by indicators of rehabilitation requirements showed that patients at all functional levels were enrolled in rehabilitation programs. The resource use data confirm that patients with different functional capacities were getting similar amounts of rehabilitation services. To put it another way, the ABCAT categories, which group patients by various combinations of functional deficit, do not capture variation in rehabilitation requirements. Hence, their validity as a rehabilitation classification system is weak.

Predictive Validity

The fundamental property of the patient classification system developed for this project is definition of iso-resource classes (categories) of long term care outputs, that is, groups of patients whose appropriate and necessary treatments involve similar levels and types of inputs, especially staffing inputs. The nature of the process by which these classes were derived, through specification by clinical and research experts in long term care and measurement, assured the attainment of face validity. Given the representativeness and expertise of the developers, the classification system should be recognized by other experts as an appropriate and consistent measure of long term care activities. However, an additional test of validity is desirable before the classification system is implemented.

Without a defined standard of measurement against which to compare or measure, the criterion of predictive validity is typically employed. According to this criterion, a measure is likely to be valid, i.e., to measure what it is supposed to measure, if it predicts an event that is hypothesized to be related to the underlying phenomenon. Thus, a patient classification system that purports to sort patients into groups that differ in their overall costliness of treatment can be used as the basis of a case-mix index. A case-mix index is a single value computed to reflect the distribution of patients

Table 18 **Mean Nursing Resource Use for Categories Based on Type of Ownership of Facilities**

		Type of Ownership		
Categories (ABCAT)	N	District Facilities	Voluntary	Private
		(N)	(N)	(N)
A	161	39.36 (36)	35.79 (63)	21.08 (62)
B	256	47.12 (104)	47.53 (83)	32.15 (9)
C	123	63.94 (55)	59.29 (39)	52.12 (29)
D	151	72.02 (53)	77.03 (63)	53.75 (35)
E	137	79.09 (51)	105.49 (57)	76.79 (29)
F	326	100.82 (180)	111.67 (135)	95.19 (11)
G	85	97.00 (25)	131.27 (55)	97.43 (5)
TOTAL	1239	504	495	240

Table 19 **Mean Resource Use (Weighted RN and NA/RNA Time) for ABCAT Categories**

		Mean Resource Use	
Categories (ABCAT)	N	Weighted RN Time	Weighted NA/RNA Time
A	161	13.78	17.14
B	256	18.08	25.14
C	123	20.10	39.57
D	151	22.10	47.77
E	137	25.57	64.00
F	326	28.03	77.09
G	85	33.92	85.28
TOTAL	1239		

Pearson's r = 0.98

Table 20 **Mean Rehabilitation Resource Use for ABCAT Categories**

Categories (ABCAT)	N	Weighted Rehabilitation Time (PT, PTA, OT, OTA)	
		$\overline{X}$	S.D.
A	161	1.81	8.08
B	256	3.35	9.84
C	123	9.08	24.38
D	151	5.44	11.63
E	137	5.66	12.75
F	326	6.33	9.88
G	85	7.46	12.24
TOTAL	1239	5.29	12.74

ANOVA F = 5.73 p = 0.000

Tests for Homogeneity of Variance
Bartlett-Box F = 28.053 p = .0000

according to a set of categories. (The formula for computing a case-mix index follows.) The correlation between a resource-weighted case-mix index and observed total cost per case across a sample of long term care institutions at one time, or over time for a given institution, is a measure of the predictive validity of the patient classification system. A higher proportion of patients in the high-resource categories should be reflected in the observed expenses for the institution. Because there are many factors other than case-mix which affect long term care costs, a perfect relationship cannot be expected. Nevertheless, case-mix is a singularly important explanatory factor. If there is no correlation between a resource-weighted case-mix index and cost per admission or cost per patient day, then there is either something wrong with the index (wrong resource weights or wrong classification definitions) or there is no need for an output adjustment in developing a long term care reimbursement system.

For this study predictive validity was tested by examining the simple correlation of overall facility costliness, as measured by expense per patient day and number of FTEs per bed, with the following case-mix index:

$$CM_f = \frac{\text{Sum } (W_i^s \, P_i^f)}{\text{Sum } (W_i^s \, P_i^s)}$$

where

P_i^f = proportion of patients in category *i* in facility *f*,

P_i^s = proportion of patients in category *i* in total sample,

W_i^s = the weighted average staff time required to treat category *i* patients in total sample.

The weights (W^s) were derived from the Provider Activity Study and were computed as the average of the weighted sum of staff times per patient across all classes of nursing staff (RN, RNA, NA). That is, the weight is a measure of the nursing labor intensity of a typical day for a typical patient in each category. The use of the formula to compute a case-mix index is illustrated in Appendix D.

The case-mix index equals 100 if the case-mix proportions in any given facility are approximately equal to those for the entire sample (if the case-mix proportions are identical, the index is defined to be 100; if the case-mix proportions differ but the differences cancel each other out when the weights are assigned, the case-mix index can be 100 by calculation). To the extent that a long term care facility tends to admit case (patient) types that have higher weights than average, the index will rise above 100. Hence, an index greater than 100 indicates that the facility has admitted patients disproportionately in the higher cost categories. Conversely, an index less than 100 indicates that the facility has admitted patients disproportionately in the lower cost categories.

Two types of data were used for this analysis: patient data and facility data. The patient data required for the case-mix index were collected during the Provider Activity Study. Specifically, the clinical and functional characteristics of all patients in the facilities during the study period were collected using the Patient Review Form. The utilization of resources for each patient was tracked over a three-day period using a series of special forms as described in Section II-D. These data were then used to develop the case-mix classification system. Once the categories were defined, the pertinent data elements were used to assign each patient to a category. This enabled computation of facility-specific and sample-wide case-mix proportions.

The facility data were obtained from reports provided by the Department of Hospitals and Medical Care. The cost reports for the study facilities provided data on expenses, revenue, and staffing. Data for the 12-month period (fiscal year) ending March 1986 were employed in this analysis.

The results of the validity test presented here are based on a case-mix index for the study facilities using nursing weights only. The analysis using nursing and rehabilitation weights is reported in Section IV.

Case-Mix Index (Nursing). If all facilities admitted cases at about the same levels of costliness, the case-mix index (CMI) would be approximately 100 for all facilities, and we could assume that case-mix was relatively homogeneous for the sample. If case-mix did not vary, the patient day would be a sufficient measure of output. However, in this sample the case-mix index based on nursing weights did vary. The range of the index was from 60 to 124, indicating significant heterogeneity among the sample facilities with respect to their case-mixes. This provides confirmation of the decision to move to a case-mix based payment system, since some patient days are much more resource intensive than others.

Facility Type. Generally, the case-mixes of nursing home facilities are much lower than those for auxiliary hospitals and combined facilities (see Table 21). The range of the CMI for Nursing Homes is from 60 to 102, with three in the 70s and one at 86. One combined facility has a CMI of 113. The CMIs for the auxiliary hospitals are 124, 123, and 98. Although the CMIs show the relative ranking of the facilities within this sample and they might change if data for the entire province were used, these results provide evidence of the face validity of the CMI. That is, those facilities expected to have the lower intensity case types on the basis of their mission and admission criteria are generally revealed to have lower CMI values, and vice-versa.

Facility Size (Number of Beds). Larger facilities (i.e., with more beds) are typically

Table 21 Case-Mix Index (Nursing) For Sample Facilities

	CMI(n)
Auxiliary Hospitals	
AH #1	124
AH #2	123
AH #3	98
Combined Facilities	
CF #1	113
Nursing Homes	
NH #1	102
NH #2	86
NH #3	78
NH #4	75
NH #5	71
NH #6	69
NH #7	60

expected to have more complex case-mixes because they can support more sophisticated modes of care over their larger financial and patient bases. The association between facility size and case-mix is positive, but not overly strong. The simple correlation is .69. However, if we take out the two largest facilities, there is almost no relationship between size and case-mix. The scatter plot in Figure 14 shows that two auxiliary hospitals are small, but have relatively high case-mix values. One facility is relatively small but has the second highest case-mix index. Among the nursing homes, there appears to be little or no association between size and case-mix. Hence, once facility type is controlled, the association between size and case-mix is not pronounced. Small facilities can have relatively "heavy care" case-mixes. However, no large facility has a "light" case-mix. Therefore, size can serve as a very weak proxy measure for case-mix intensity.

Output: Total Volume (Patient Days). Another indicator of facility size is total volume of output, or total patient days. However, since all of the study facilities had nearly 100% occupancy rates, the relation between patient days and case-mix is nearly identical to that between beds and case-mix (see Figure 15).

Input: Personnel per Patient Day. Measures of real inputs per patient day should also vary with case-mix. Hence, scatter plots were computed for total staff minutes per patient day and total nursing minutes per patient day (Figures 16 and 17). These results are much more in keeping with expectations. The overall correlation between CMI and total staff minutes per patient day is .89. Inspection of the scatter plot reveals that the points are relatively tightly clustered about the prediction line. Only the nursing home with the highest CMI value appears to be divergent. This illustrates that the real use of labor inputs varies closely with the CMI. This is, of course, close to the actual method used to construct the CMI weights.

An examination of the relationship between CMI and *nursing* minutes per patient day reveals somewhat more variability. The correlation is about the same, 0.88. Two reasons for this drop in "goodness of prediction" relative to total staff minutes per day may be greater variability in the use of various types of personnel and differences in the accuracy of reporting of personnel times by type on the cost reports. Regarding the first point, when faced with a given demand for care implicit in a specified case-mix, facility administrators have some discretion regarding the mix of types of personnel to meet those demands. Thus, focusing on a subset of personnel may exclude some of the personnel that were actually employed to provide the care.

Labor/Capital Ratios: Personnel per Bed. The number of full-time-equivalent personnel per bed is a measure of the labor-capital mix of long term care facilities. Facilities with higher case-mix index values should require greater numbers of personnel per bed to care for the higher dependency levels of the patients occupying their beds. Indeed, this is the case in the sample facilities: the correlation between these variables is .91. The graph of this correlation is nearly identical to the one for total staff minutes per patient day. Because most of these facilities have very long lengths of stay, the relationship between patient days and beds is nearly definitional: 1 bed = 365 patient days. A similar relationship holds for nursing minutes per bed and nursing minutes per patient day. Hence, the correlation between CMI and nursing minutes/bed is also .91. Because of their similarities to Figures 16 and 17, these scatter plots are not presented here.

In conclusion, the case-mix index demonstrates a strong positive association with relative labor intensity of the long term care output for the study facilities. Similar analyses with various measures of labor costs (not reported here) also produced strong positive correlations. Hence, the patient classification system possesses *excellent predictive validity*. There are some anomalies requiring further investigation that are beyond the scope of this study.

D. Summary

The seven categories that group patients according to their care requirements were derived by a process designed to maximize their clinical relevance while producing a classification system that also met methodological and administrative criteria. The categories group patients according to attributes which indicate their need for assistance with activities of daily living and behaviors of daily living and for continuing care for urinary and fecal incontinence. These attributes describe the functional capacities of the patient, which in turn determines the need for nursing services. This is consistent with the assumption underlying the development of the categories, namely, that long term care requirements are determined by functional capacity rather than etiologic factors, many of which produce similar functional deficits. The incontinence items, which are conceptually distinct from other functional items, were included because they interact with behavioral deficits in

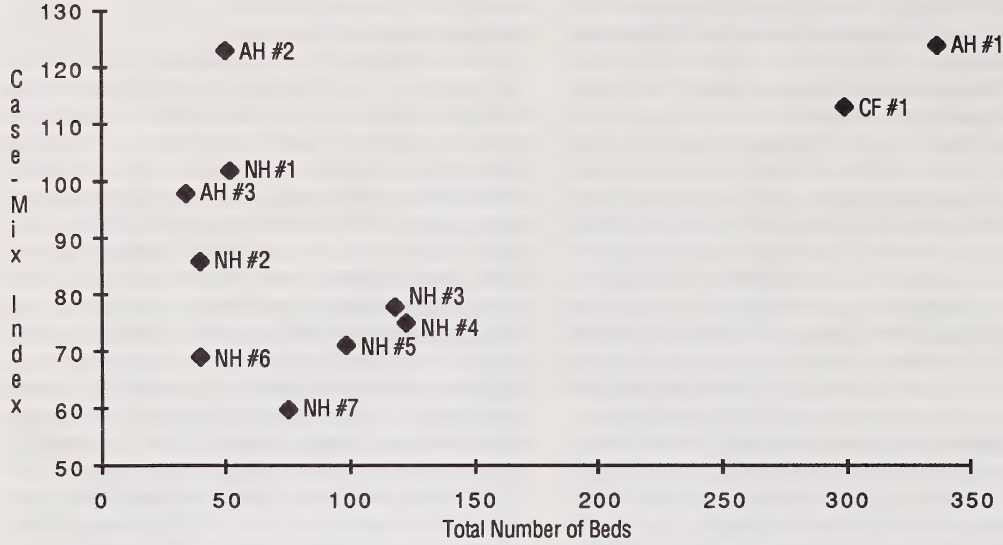


Figure 14 Case-Mix Index by Total Number of Beds

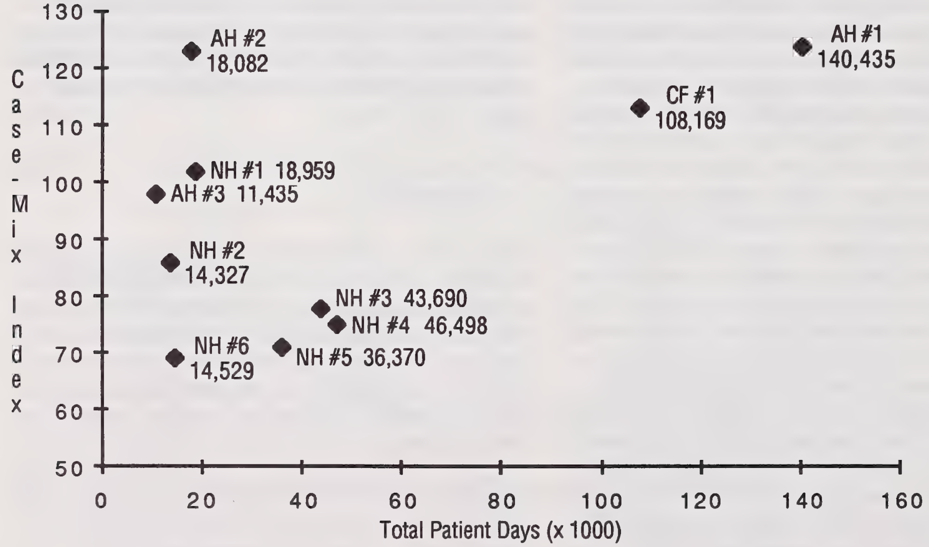


Figure 15 Case-Mix Index by Total Patient Days

Note: Because NH #7 was a unit in a larger facility, separate occupancy data were not available. Therefore, the unit was not included in the correlations presented here.

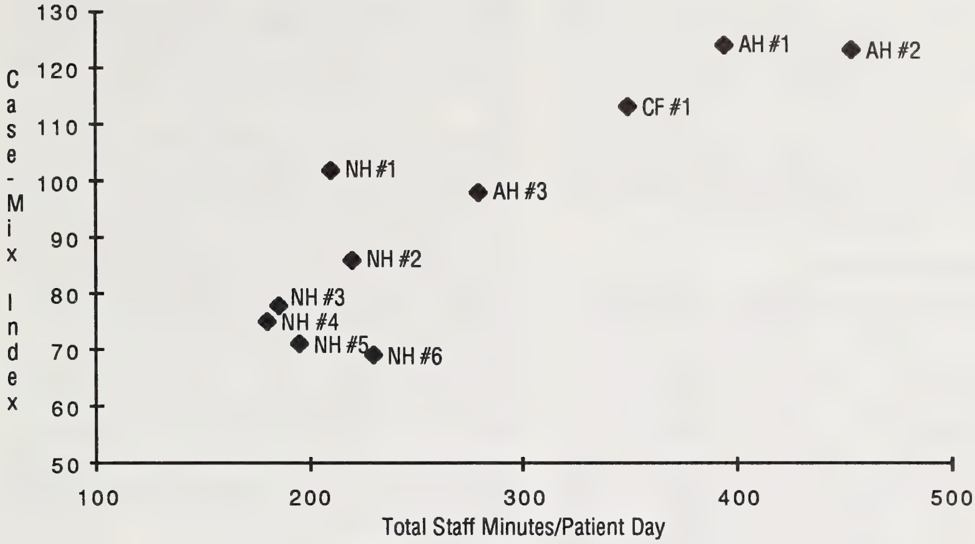


Figure 16 **Case-Mix Index by Total Staff Minutes/Patient Day**
r = 0.89

Note: Because NH #7 was a unit in a larger facility, separate occupancy data were not available. Therefore, the unit was not included in the correlations presented here.

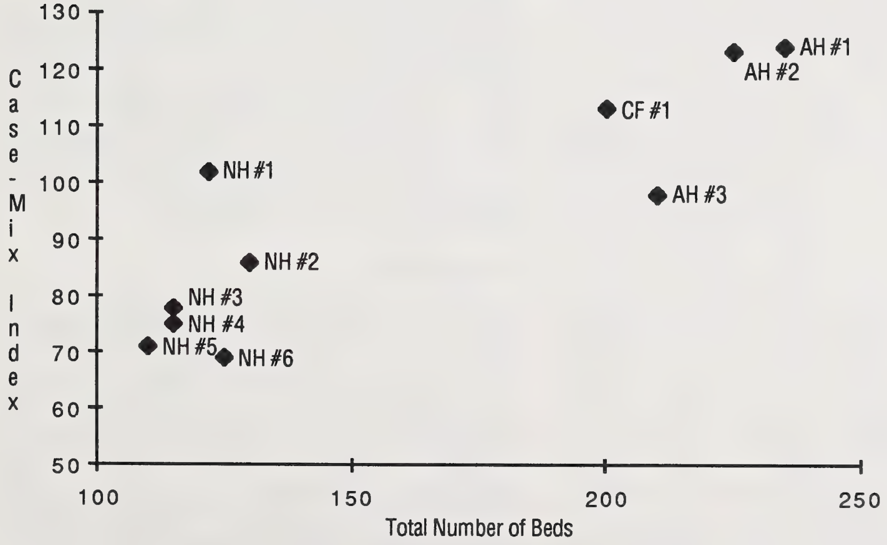


Figure 17 **Case-Mix Index by Total Nursing Minutes/Patient Day**
r = .88

Note: Because NH #7 was a unit in a larger facility, separate occupancy data were not available. Therefore, the unit was not included in the correlations presented here.

producing differences in care requirements. Items from the other domains considered in the development of the categories were not included as final classification variables since they did not increase the explanatory power of categories based on patients' functional levels (ADL, BDL with incontinence added). The extent to which the categories meet the methodological, clinical and administrative criteria is summarized below.

Methodological Criteria

The categories were designed to be mutually exclusive and collectively exhaustive. All patients found in the long term care facilities could be categorized in one and only one of the seven categories, including terminally ill patients, comatose patients, those ready for discharge and others on special programs such as the young physically handicapped. The only patients in the sample who were not categorized were the few for whom some of the data were missing. Though the categories are mutually exclusive with respect to the attributes of the patients in the categories, there is some overlap in resource use. That is, patients with different attributes nevertheless require similar amounts of nursing care as measured by time spent by different types of personnel. The categories, however, do distinguish groups that differ in the mean amount of care required from nursing staff and despite some overlap are relatively homogeneous within each of the categories. Taken together the categories explain approximately half of the variance in nursing resource use. When type of facility is taken into account the explained variance increases to 51.5%, an R-square value consistent with the explained variance of most case-mix classification systems currently used in long term care (Arling, et al., 1985; Arling, et al., 1987; Schneider, et al., 1984; Schneider, et al., 1985). The only system that accounts for a substantially higher percentage of resource use (68.5%) is the one developed by Cameron (1985). It should be noted that there is no standard for an ideal R-square value. In part this is because there is no set information on how much of the variation in resource use should be explained by patient characteristics and how much should be explained by other factors. It is unrealistic to expect that all of the variation in resource use in long term care facilities is due to differences in case-mix. An R^2 of 50% is reasonable and, likely, very appropriate.

Reliability of the Classification System

The reliability of the classification system was evaluated by testing inter-rater agreement on patient indicators. When this was done in controlled conditions (that is, controlling for the time of observation and the source of data), agreement on all the classification items was very high — between 95 and 100%. Whether such high agreement can be maintained in practice will require ongoing evaluation. In practice a larger number of classifiers will be collecting information and data will be collected over a longer period of time. Therefore, the possible shifts in interpretation of items over time among classifiers should be checked. A proposal for ongoing monitoring of reliability is included in Section V. In addition, reliability of the decision rules for placing patients in categories was not tested. This will be checked during the training of classifiers and reported in a description of that training. However, if classification is done by computer, as it was for this project, the chance of error in interpreting the decision rules is eliminated.

Clinical Criteria

Because of the clinical orientation and background of study team members, the initial conceptualization of the categories emphasized the relevance of the items for clinical practice. Input from the Expert Panel at each stage of the development of the categories ensured that the final categories remained clinically relevant. The Panel reviewed the categories for clinical meaningfulness and discussed them with their colleagues. Though the categories are complex, the Panel could easily identify examples of patients representative of each of the categories. Though diagnosis and medical problems do not define the categories, the categories nevertheless capture groups of patients that are meaningful to clinicians — nursing, rehabilitation and medical personnel.

Administrative Criteria

The small number of categories (7) was intended to make the categories administratively simple to use. Though the combination of indicators that place patients in the categories is complex, the Panel members had little trouble in using the decision matrix to place patients in an appropriate category. Though designed for computer use, the categories also can be used manually with ease. Facilities without a computerized system will be able to classify patients without relying on data supplied by the Department of Hospitals and Medical Care.

In summary, the seven categories capture patients' requirements for nursing care and meet the criteria established as guides to the development of the categories. These categories do not incorporate rehabilitation requirements. Alternatives for incorporating rehabilitation in the classification system are discussed in the next section.

IV. INCORPORATING REHABILITATION INTO THE CLASSIFICATION SYSTEM

Rehabilitation was treated separately from nursing in developing the Alberta Patient Classification System for Long Term Care Facilities primarily because the state of the art in defining need for rehabilitation is not well developed. Consequently, the indicators used to classify patients were the rehabilitation services actually prescribed. Even this measure posed significant problems because not all of the sample facilities were able to provide rehabilitation services. This section describes the conceptual and methodological problems encountered in classifying rehabilitation needs, attempts to resolve them and recommendations for future research. It is organized in four parts: The first focuses on the definition of rehabilitation categories and includes a discussion of the problems associated with defining rehabilitation requirements. The second part focuses on alternative methods of incorporating rehabilitation into the classification system and methods of computing category weights for these alternatives. The third part compares the case-mix indices computed for the alternatives. The final section concludes with recommendations and a discussion of unresolved issues.

A. Rehabilitation Categories

In the original conceptualization of the Alberta Long Term Care Classification System, rehabilitation was not considered as an entirely independent domain since the required care is determined in part by patients' ADL and BDL functional deficits. Thus, one way of defining patients' requirements for rehabilitation is by their functional status; patients with few or no deficits either do not require rehabilitation or require less than those with greater deficits. However, functional indicators *alone* do not distinguish the need for rehabilitation; potential to benefit from therapy is also taken into account. Moreover, it was important to distinguish both the generic need for rehabilitative care and the need for specialized services from occupational and physical therapists (rehabilitation case-mix). Therefore, two additional items were included in the PRF to collect data on rehabilitation required for functional deficits by type of therapy required: rehabilitation for ADL deficits and rehabilitation for BDL deficits.

As mentioned earlier in this report, one criterion guiding the selection of classification variables was that they be indicators of *care required* not care *received* in order to avoid confounding case-mix with provider efficiency. However, it was necessary to compromise in the case of rehabilitation. The following items were used to obtain rehabilitation data:

Rehabilitation in ADL Domain: Refers to type of rehabilitation program patient is receiving for problems with ADLs. *Check for OT and PT separately.*

OT	PT		
_____	_____	0	Patient is not on any program (but rehabilitation programs are available to patients in this facility and patient may get PRN assistance).
_____	_____	1	Patient receives only consultation and/or monitoring.
_____	_____	2	Patient is on low maintenance program.
_____	_____	3	Patient is on high maintenance program.
_____	_____	4	Patient is on restorative program.
_____	_____	8	No rehab programs are available to patients in this facility.

Rehabilitation in BDL Domain: Refers to type of rehabilitation program patient is receiving for problems with any BDLs. *Check for OT and PT separately.*

OT	PT		
_____	_____	0	Patient is not on any program (but rehabilitation programs are available to patients in this facility and patient may get PRN assistance).
_____	_____	1	Patient receives only consultation and/or monitoring.
_____	_____	2	Patient is on low maintenance program.
_____	_____	3	Patient is on high maintenance program.

______ ______ 4 Patient is on restorative program.

______ ______ 8 No rehab programs are available to patients in this facility.

In summary, the indicator that a patient *needed rehabilitation* was the recorded and verified evidence that the patient *was on a rehabilitation program* of a particular type prescribed by either an occupational or physical therapist. This assumes that the prescribed program is what the patient required and that it was actually carried out. The type of therapy provided for ADL and BDL functional problems was obtained from the patient's medical record. The therapist in charge was asked to verify the accuracy and currency of the record.

To obtain a single measure of the level of rehabilitation (RHL) required by a patient, data from the two rehabilitation items were combined. First, the two items were combined for each professional type — occupational therapy and physical therapy. The highest level of occupational therapy received for *either* ADL *or* BDL deficits was used. Thus if a patient was receiving OT consultation for ADLs but was on a restorative OT program for BDLs, the patient's occupational therapy requirement was scored as a 4 (on a restorative program). The same procedure was used for physical therapy programs. Then, the OT and PT items were combined according to the following definitions:

0 - Unknown:	No rehab services available in facility (8 on both OT and PT).
1 - Low: (PRN Only)	Patient does not require regular rehabilitation program but has been assessed and may require prn services (0 on OT or PT or both).
2 - Medium: (Consult and Monitor)	Patient requires consultation and monitoring only (1 on *either* OT *or* PT rehab *or* both)
3 - High: (Maintain)	Patient requires maintenance OT or low maintenance PT (*either* a 2 *or* 3 on OT *or* 2 on PT *or* both).
4 - Very High: (Restore)	Patient requires restorative OT *or* restorative PT *or* high maintenance PT (*either* a 4 on OT *or* a 3 *or* 4 on PT *or* both).

As with the ADL and BDL levels, these categories were developed by an iterative process in which the clinically defined categories were analyzed using a one-way analysis of variance to determine their ability to differentiate resource use. The definitions were revised until the mean resource use differed significantly. The mean resource use per category was computed by averaging the weighted minutes of care provided by all rehabilitation personnel (OTs, PTs, OT aides and PT aides) to patients in that group. (This procedure is described in detail in Section II-C.)

One of the problems in developing appropriate relative weights for rehabilitation was the variation in availability of services in sample facilities. Many facilities did not provide the full complement of rehabilitation services and some had only part-time personnel who were not in the facility when resource use data were being collected. To ensure that weights were not determined by level of available resources, computations were based on data collected from facilities with *approved* levels of both OT and PT personnel who were present during the study period. Thus the resource weights reflect the relative differences in time spent by professional and non-professional rehabilitation staff for each level of rehabilitation when staffing is at the approved level.

From the PRF data it was possible to compare two alternative ways of grouping patients with different rehabilitation requirements: first, by functional status (ADL and BDL levels) and second, by rehabilitation received (RHL). If the groupings captured differences in rehabilitation requirements, patients with higher needs for care on the average would use more resources.

Examination of the data revealed that patients at all functional levels were on rehabilitation programs, and type of program did not vary by functional deficit. When the rehabilitation resource weights for ADL and BDL levels were analyzed separately no significant differences were found in rehabilitation resource use by level of impairment. The resource use data confirm that groups of patients with different functional capacities were getting similar amounts of rehabilitation services. When ADL and BDL levels were combined with incontinence level (ABCAT categories) the results were similar. Table 22 shows the mean weighted minutes of rehabilitation service provided to patients in the seven ABCAT categories. The categories are not ranked (ordered from low to high intensity of rehabilitation resource use) as they are on intensity of nursing resource use. That is, rehabilitation resource intensity shows little variation across types of patients grouped by ADL, BDL and incontinence care requirements. The ABCAT categories, which group patients by various combinations of functional deficit, do not capture variation in rehabilitation requirements. These data confirm that ADL/BDL deficits alone do not predict rehabilitation needs or utilization.

Table 22 **Mean Rehabilitation Resource Use for Categories (ABCAT) (Based on Data From Facilities With Approved Levels of Rehabilitation Personnel Present During Study Period)**

Categories (ABCAT)	N	Mean Rehabilitation Time (OT, OTA, PT, PTA)	
		$\overline{X}$	S.D.
A	55	2.03	3.71
B	116	6.48	13.69
C	73	11.69	29.31
D	89	8.24	14.04
E	83	8.48	15.30
F	297	6.85	10.17
G	79	7.35	14.56
TOTAL	792	7.32	14.34

ANOVA F = 3.272 p = 0.000

Tests for Homogeneity of Variance

Bartlett-Box F = 47.318 p = .0000

The second approach grouped patients by rehabilitation level (RHL). The weights for the four RHL groupings are displayed in Table 23. They show the expected increase from low (1) to very high (4). One-way analysis of variance confirmed that the group means differ significantly (F = 32.83; p = 0.000). The variances also differ significantly, but more importantly they are very high. The standard deviations, which are greater than the group means, indicate considerable overlapping of rehabilitation categories. However, the Expert Panel reviewed the relative weights and confirmed that relative differences correspond to differences in resources used for the specified types of rehabilitation. Therefore, the RHL categories and weights can be used to determine rehabilitation case-mix.

In summary, two independent sets of categories and weights capture care requirements as follows:

1. Nursing (7 ABCAT categories): Mean weighted nursing time per ABCAT category and
2. Rehabilitation (4 RHL categories): Mean weighted rehabilitation time per rehabilitation category.

The seven ABCAT categories determined by ADL, BDL and incontinence levels distinguish groups of patients with different intensities of nursing resource use. The four categories determined by rehabilitation level (RHL) group the same set of patients according to different intensities of rehabilitation resource use. Independently, these two sets of categories, as already described, perform well according to the criteria of homogeneity, discriminability, ordinality, and validity. They can be used independently to produce two sets of case-mix indices per facility — one for nursing and one for rehabilitation. However, the two sets of categories and weights can also be combined to produce a single set of categories and weights. That is, for any given nursing category, four RHLs can be defined, or within any RHL, seven levels of nursing intensity can be defined.

B. Alternatives for Combining Nursing and Rehabilitation

Three alternative methods can be used to combine these two dimensions to produce a single set of categories representing both nursing and rehabilitation requirements. The first two methods group patients into the seven ABCAT categories. The category weights, however, reflect the distribution of patients within ABCAT

Table 23 **Mean Rehabilitation Weights for Care Required by Rehabilitation Category (Based on Data From Facilities With Approved Levels of Rehabilitation Personnel Present During Study Period)**

Rehabilitation Categories (RHL)	N	Weighted Rehabilitation Time (OT, OTA, PT, PTA, PT Porters)		
		$\overline{X}$	S.D.	Relative Weight*
1 Low (PRN Only)	293	2.81	1.20	1.00
2 Medium (Consult)	94	4.15	10.50	1.48
3 High (Maintain)	238	9.08	11.64	3.23
4 Very High (Restore)	124	16.50	16.97	5.87
TOTAL	749	7.24	14.38	

ANOVA F = 32.83 p = 0.000

Test for Homogeneity of Variance

Bartlett-Box F = 12.02 p = 0.000

$$^{*}\text{Relative weight} = \frac{\text{Mean Resource Use for Category i}}{\text{Mean Resource Use for Category 1}} \qquad i = 1, 2, 3, 4$$

categories on rehabilitation level. Method I uses these rehabilitation weights alone: Method II adds the nursing weights for the ABCAT categories to produce combined resource intensity weights. The third method groups patients into 28 or 35 categories reflecting their joint distribution on ABCAT categories (7) and RHL categories (4 or 5). The category weights are the sum of the ABCAT and RHL weights for each cell of the ABCAT X RHL matrix. These methods produce the following categories and weights which are described in detail below:

Method I (7 ABCAT categories). Mean weighted rehabilitation time per ABCAT category.

Method II (7 ABCAT categories). Mean weighted combined nursing and rehabilitation time (nursing weights plus rehabilitation weights per ABCAT category).

Method III (ABCAT X RHL categories, 28 or 35 combined categories). Mean weighted total time (nursing plus rehabilitation time) per combined category.

The first method produces seven categories with rehabilitation weights computed from the proportion of patients in each ABCAT category receiving various levels of rehabilitation. As shown in Table 24, the percentage of patients in each ABCAT category receiving no regular rehabilitation program (PRN only) ranges from a high of 59.6% in category A to a low of 25.3% in category E. More patients in categories E, F and G are on a regular program. Moreover, the patients in E, F and G receiving rehabilitation tend to get maintenance therapy in contrast to those in categories B, C and D, a higher proportion of whom receive a restorative therapy.

To account for the variation in RHL within ABCAT categories a rehabilitation weight is computed as shown in Table 25. First, within each ABCAT category, the proportion of patients receiving each level of rehabilitation is multiplied by the weight for that level. The four products are summed to produce one rehabilitation weight for each category. The seven resulting weights show little variation (see Table 25, Method I). Although category A has a low weight of 4.77, the remaining six category weights are remarkably similar, varying only between 7.09 and 7.96. The differences in resource use required by the different rehabilitation levels are obscured within ABCAT categories. That is, the resources used for the higher proportion of patients receiving restorative therapy in categories B, C, D and G are offset by the higher proportion of patients getting maintenance therapy in categories E and F.

Method II produces a combined nursing and rehabilitation weight for the seven categories. This

Table 24 Percentage of Patients Receiving Rehabilitation by Category (ABCAT), and Rehabilitation Level (RHL) in Facilities With Approved Levels of Rehabilitation Personnel Present During Study Period

		Level of Rehab Required (OT-PT combined)			
Categories (ABCAT)	N	1 PRN %	2 Consult %	3 Maintain %	4 Restore %
A	52	59.6	23.1	9.6	7.7
B	110	45.5	12.7	21.8	20.0
C	70	40.0	11.4	25.7	22.9
D	82	41.5	8.5	24.4	25.6
E	96	25.3	16.5	44.3	13.9
F	263	35.2	11.7	41.8	11.4
G	69	42.9	6.5	28.6	22.1
TOTAL	743	39.3	12.2	32.0	16.4

Table 25 Computation of Rehabilitation Weights (Method I) and Combined Weights (Method II) Based on Proportion of Patients Requiring Different Levels of Rehabilitation in Each Category and Mean Weighted Rehabilitation Time for Each Level of Rehabilitation

Category (ABCAT)	Nursing Weights	Rehabilitation Level (RHL) Weight												Method I Rehab Weight (1+2+3+4)	Method II Combined Nursing and Rehab Weights N Wt +W t
		1 Low (2.81)			2 Medium (4.15)			3 High (9.08)			4 Very High (16.5)				
		P	Wt.	P X Wt. (1)	P	Wt.	P X Wt. (2)	P	Wt.	P X Wt. (3)	P	Wt.	P X Wt. (4)		
A	30.92	.596	2.81	1.67	.231	4.15	.96	.096	9.08	.87	.077	16.5	1.27	4.77	35.69
B	43.21	.455	2.81	1.28	.127	4.15	.53	.218	9.08	1.98	.200	16.5	3.30	7.09	50.30
C	59.68	.400	2.81	1.12	.114	4.15	.47	.257	9.08	2.33	.229	16.5	3.78	7.70	67.38
D	69.88	.415	2.81	1.17	.085	4.15	.35	.244	9.08	2.22	.256	16.5	4.22	7.96	77.84
E	89.57	.253	2.81	.71	.165	4.15	.68	.443	9.08	4.02	.139	16.5	2.29	7.70	97.27
F	105.12	.352	2.81	.99	.117	4.15	.49	.418	9.08	3.80	.114	16.5	1.88	7.16	112.28
G	119.20	.429	2.81	1.21	.065	4.15	.27	.286	9.08	2.60	.221	16.5	3.65	7.73	126.93

combined weight is derived by adding the nursing weight and the rehabilitation weight per ABCAT category. The resultant combined weights are displayed in Table 25. The combined weights increase monotonically from A (35.69) to G (126.93), with values somewhat higher than those of the nursing weights alone. The major difference between the nursing weights and these combined weights is that the addition of rehabilitation increases the difference between category A and category B weights, from 12.29 (nursing weights) to 14.61 (combined weights).

The final method of computing combined nursing-rehabilitation weights (Method III) is displayed in Table 26. By creating a matrix of ABCAT and RHL, a set of either 28 or 35

Table 26 Computation of Combined Nursing - Rehabilitation Weights for ABCAT by RHL Matrix (Method III)

ABCAT Category	Rehabilitation Level (RHL) 0-Unknown N Wt.	1-Low R Wt.	1-Low N + R	2-Medium R Wt.	2-Medium N + R	3-High R Wt.	3-High N + R	4-Very High R Wt.	4-Very High N + R
A	30.92	2.81	33.73	4.15	35.07	9.08	40.00	16.50	47.42
B	43.21	2.81	46.02	4.15	47.36	9.08	52.29	16.50	59.71
C	59.68	2.81	62.49	4.15	63.86	9.08	68.76	16.50	76.18
D	69.88	2.81	72.69	4.15	74.03	9.08	78.96	16.50	86.38
E	89.57	2.81	92.38	4.15	93.72	9.08	98.65	16.50	106.07
F	105.12	2.81	107.93	4.15	109.27	9.08	114.23	16.50	121.62
G	119.20	2.81	122.01	4.15	123.35	9.08	128.28	16.50	135.70

categories is produced. The 35 category matrix allows for the inclusion of facilities with no rehabilitation services (0 on RHL). The weights for the seven cells that are 0 on RHL are the nursing weights alone. (The implication of including these cells in the matrix becomes clear when case-mix indices are computed.) Weights for the remaining cells are obtained by adding the nursing weight for the appropriate ABCAT category to the rehabilitation weight for the appropriate RHL category. For example, the nursing weight for category G is 119.20. To obtain a weight for the class of G patients who need restorative rehabilitation, the rehabilitation weight for RHL 4 (Very High), 16.50, is added to 119.20 to obtain a weight of 135.70 (see Table 26).

Each alternative method of defining categories takes into account the realities of the current distribution of rehabilitation services and is based on identical data available from the PRF. The methods differ in the complexity of the computation required to arrive at the category weights and their implications for future development of the Long Term Care Classification System.

Method I and Method II have the advantage of using the seven ABCAT categories as the basis for classifying patients. The classification data for this categorization are available in all long term care facilities. By providing rehabilitation weights (Method I) and combined weights (Method II) for the seven categories both methods allow rehabilitation resource use to be anticipated in facilities without existing rehabilitation services. However, both methods assume that the proportion of patients in each (nursing) category needing the various levels of rehabilitation is constant across facilities. This does not allow for variation in case-mix by rehabilitation requirements — a limitation for facilities providing the full complement of rehabilitation services. This disadvantage is eliminated by Method III which allows for variation in case-mix by *both* ABCAT and RHL categories. To categorize patients by rehabilitation level (RHL) requires that facilities have rehabilitation staff to assess patients' needs for rehabilitation and prescribe appropriate programs. By adding the "0" level (RHL unknown) the patients in facilities without physical or occupational therapy can be included. Patients in this case are categorized by ABCAT variables alone (ADL, BDL and incontinence levels).

Method III, like the two previous methods of combining weights, assumes that the resources used to provide different levels of rehabilitation service do not vary by the functional level of the patient as determined by ABCAT category — a category G patient getting restorative rehabilitation uses the same amount of time that a category B patient uses. That is, it assumes that there is no interaction between nursing and rehabilitation requirements. This assumption was tested and supported a by two-way analysis of variance with data from facilities with a full complement of services.

The results of the two-way analysis of variance on rehabilitation resources per case are shown in Table 27. The main effects are both significant. That is, rehabilitation resource use varies significantly by both ABCAT category and mode of rehabilitation (RHL). The interaction is *not* significant, which suggests that a linear model for rehabilitation (ABCAT plus RHL) is appropriate in specifying the

Table 27 **Analyses of Variance: Rehabilitation Weight by ABCAT and RHL**
Total Sample: N = 1183

	Rehabilitation Level (RHL)				
Category (ABCAT)	0-Unknown	1-Low	2-Medium	3-High	4-Very High
	(n)	(n)	(n)	(n)	(n)
A 157	0.00 (36)	1.82 (79)	0.20 (21)	4.30 (13)	9.77 (8)
B 250	0.00 (33)	0.68 (111)	1.18 (37)	6.97 (39)	13.92 (30)
C 120	0.00 (12)	6.30 (51)	7.32 (12)	12.69 (25)	19.46 (20)
D 143	0.00 (22)	0.66 (51)	0.67 (15)	9.38 (30)	15.92 (25)
E 130	0.00 (13)	1.91 (38)	1.18 (21)	8.29 (42)	19.84 (16)
F 300	0.00 (4)	1.82 (110)	6.35 (34)	8.00 (120)	13.01 (32)
G 83	0.00 (3)	4.30 (36)	3.41 (5)	8.65 (22)	14.98 (17)

Main Effects
ABCAT F = 3.1071 p = 0.006
RHL F = 43.99 p = 0.000

2 Way Interactions
ABCAT, RHL F = 0.59 p = 0.94

rehabilitation weights per category. (Even when the analysis is limited to the three facilities with full rehabilitation services, the interaction term remains insignificant.)

Although Method III is a linear model since nursing and rehabilitation weights were added, the use of a 28 or 35 cell matrix for classifying patients will allow the possibility of interaction between nursing and rehabilitation. In the future, resource use data collected from a larger sample of facilities with complete rehabilitation services available could be used to compute weights based on *mean total resource use* for each of the 28 categories. (See Section II-C for discussion of computing total resource weights.) If interaction is present within the larger sample, the computation of weights based on total resource use for each possible combination of nursing and rehabilitation care requirements would allow for the interaction.

C. Case-Mix Indices

The different sets of categories and category weights produce different case-mix indices (CMIs). These differences, shown in Table 28, illustrate the advantages and disadvantages of using nursing (ABCAT) and rehabilitation (RHL) categories independently or combining nursing and rehabilitation by one of the three methods. The first two columns show the case-mix indices based on ABCAT and RHL categories respectively.

Columns 3 through 6 show the case-mix indices for Method II and the two variations of Method III. On nursing case-mix, the facilities are ranked from low (CMI = 69) to high (CMI = 124). The five nursing homes with CMIs below 100 have case-mixes that are lighter than the average for this sample, whereas the combined facility and two

Table 28 **Case-Mix Indices for Sample Facilities Based on Different Methods of Computing Nursing, Rehabilitation and Combined Weights**

	Methods of Computing Weights (N of Categories)					
			Combined Nursing and Rehabilitation			
	Nursing	Rehabilitation	Method I	Method II	Method III	
Facility	Nursing Wts for Nursing Categories (ABCAT)	Rehab Wts for RHL Categories	Rehab Wts for ABCAT Categories	Combined N & R Wts for ABCAT Categories	Combined N & R Wts for Matrix (ABCAT by RHL)	
	(7)	(4)	(7)	(7)	(28)	(35)
NH #6	69	64	99	72	68	70
NH #5	71	98	94	73	66	68
NH #4	75	–	95	77	–	70
NH #3	78	65	97	80	75	77
NH #2	86	91	101	88	84	87
AH #3	98	78	97	98	92	95
NH #1	102	108	104	103	101	104
CF #1	113	117	102	112	110	114
AH #2	123	126	104	122	122	126
AH #1	124	114	104	123	131	136

NH = Nursing home
AH = Auxiliary hospital
CF = Combined facility

auxiliary hospitals have case-mixes that are heavier than the sample-wide average. Auxiliary hospital #3 with a CMI of 98 is only slightly below average whereas nursing home #1 with a CMI of 102 is slightly above average.

When only rehabilitation is used to compute case-mix, the ranking of facilities is different. Nursing home #6 (CMI = 64) still ranks lowest. However, nursing homes #5 and #2 have heavier rehabilitation mixes than auxiliary hospital #3. Also, auxiliary hospital #1, the facility with the heaviest mix on nursing, does not have the heaviest rehabilitation mix. Nursing home #4, the only facility with neither OT or PT services, is not ranked at all. This CMI cannot be computed for facilities without rehabilitation services, since RHL is based on rehabilitation programs prescribed for patients.

The three remaining columns in Table 28 show indices based on the three alternative methods for combining nursing and rehabilitation. The CMIs based on rehabilitation weights for ABCAT categories (Method I) produce yet another ranking of facilities. In this case the facility with the lightest case-mix on both nursing and rehabilitation individually (NH #1) has a CMI close to the average for the sample (CMI = 99). Method I produces little variation in case-mix, which reflects the lack of variation in the category weights. When nursing weights are added (Method II) the combined CMI ranks the facilities in the same order as the CMIs based on nursing alone.

Method III produces case-mix indices with a larger range than nursing alone, whether 28 or 35 categories are used. The CMI values range from 66 to 131 for the 28-category distribution and from 68 to 136 for the 35 categories. Both rank the facilities in the same order though the 28-cell matrix does not allow the computation of an index for the nursing home without rehabilitation services (NH #4). An advantage of a CMI based on combined Method III as compared with the CMIs based only on nursing or rehabilitation can be seen by comparing the CMIs for nursing home #5 and auxiliary hospital #1. Using the combined method, NH #5 has the lightest mix though it has a high proportion of patients with heavy rehabilitation requirements according to the "Rehab only" CMI. The patients getting the restorative rehabilitation are those requiring less intense nursing care, i.e., are in the lower ABCAT categories. Therefore, the facility's combined CMI (Method III) is the lowest in the sample (68). In contrast, AH #1 has the heaviest mix of both nursing and rehabilitation (Method III) even though it did not have the heaviest "Rehab only" mix. The patients receiving the highest level of rehabilitation (restorative care) also require heavy nursing care, i.e., are in the higher ABCAT categories. Therefore, the combined method produces the highest CMI in the sample (136).

D. Recommendations for Immediate Implementation and Future Research

A crucial activity of long term care providers is provision of services to improve or sustain functional capacity. Improvement and maintenance of functional capacity is the goal of rehabilitation personnel as well as nursing. A long term care classification scheme is not complete if rehabilitation has been omitted from the system. The study team recommends that the province adopt one of two approaches to the incorporation of rehabilitation into the case-mix measure and the reimbursement system. One approach is to maintain *nursing* and *rehabilitation* categories as separate but jointly applied schemes: 7 nursing categories and 4 rehabilitation categories. Every patient would be assigned two scores, a nursing score which reflects relative intensity of nursing services needed, and a rehabilitation score to reflect the relative claim on rehabilitation resources. In application to reimbursement, this requires that the total long term care patient care budget be split into two parts corresponding to nursing and rehabilitation. Parallel case-mix adjusted payments would be derived for each facility. This approach allows separate treatment of rehabilitation, from both policy and administration perspectives. That is, separation enables modification of the rehabilitation categories without changing (disturbing) the nursing categories and budget allocations. Providers may also perceive that these separate schemes are simpler and easier to understand. As long as the production processes are separable, providers will not be critical of this approach to reimbursement.

The second recommended alternative is to adopt the 35-category scheme which integrates nursing and rehabilitation into a single global case-mix index. Such a scheme would enable a single overall budget allocation scheme, allowing for more administrative simplicity, but with a more complex description of long term care requirements. The critical issue here is that efforts to reorganize rehabilitation services to improve access and quality will have an impact on nursing. Hence the assumption of separability will become increasingly inappropriate, especially as nurses and rehabilitation specialists develop integrated care plans that involve explicit participation of nursing personnel in the delivery of rehabilitation services. As this fact is recognized by facility administrators, they are likely to push for rebasing the case-mix scheme so that the resource weights accurately reflect the (potential) interaction among nursing, OT and PT activities.

An important *caveat* is that the rehabilitation classification is relatively less developed than the nursing classification, especially with respect to its empirical foundation. The rehabilitation data were much less complete than the nursing data. While the Expert Panel may have created the "ideal" rehabilitation categories, the empirical validation of their professional judgment is not yet available. Hence, the study team recommends that special attention be devoted to monitoring actual patterns of rehabilitation care across all types of long term care facilities in the province. The first issue is the barrier to access to rehabilitation services for patients in many facilities. A policy initiative to reduce these barriers should be evaluated. The rehabilitation categories (RHLs), in essence, represent a set of criteria for standards of rehabilitation care. provincial health planners, in adopting these RHL categories, need to understand the allocation criteria implied by the rehabilitation experts in defining them (i.e. that patients in all ABCAT categories are eligible for all types of rehabilitation programs and that patients in different ABCAT categories on the same type of rehabilitation program require the same resources).

Some Questions for Future Research

Development of the Alberta Long Term Care Classification system proceeded sequentially, with the first phase focusing on definition of iso-nursing resource categories, and then the second stage focusing on definition of iso-rehabilitation categories. This sequential process imposed the assumption of partial separability (and/or independence) between nursing and rehabilitation activities. That is, defining patient categories on the basis of nursing resource use alone assumes that the level of rehabilitation care provided has no impact on the level of nursing care. This assumption is subject to empirical test, given specification of the ABCAT system. Table 29 shows the results of a two-way analysis of variance of nursing resource use per case by ABCAT category and rehabilitation category. Both main effects are statistically significant, showing that these two sets of categories explain a significant portion of the variance in nursing resource use. The ABCAT categories and RHL categories both demonstrate ordinal properties with respect to nursing intensity.

The two-way interaction term (ABCAT X RHL) is not significant ($p = 0.15$), suggesting that the level of nursing care per ABCAT category is not affected by the level of rehabilitation care provided. However, inspection of the individual cell means reveals that nursing care may be higher for cases provided a medium level of rehabilitation (consultation & monitoring only) than for cases provided a high level of rehabilitation (maintenance and restorative rehabilitation). Hence, this suggests the eventual need to examine two questions: (1) To what extent do nurses substitute for rehabilitation personnel in meeting the rehabilitation needs of long term care patients? and (2) Are nursing requirements increased by rehabilitation activities (i.e., is nursing *complementary* for some rehabilitation procedures). These questions were not addressed within the scope of this study because the data base on rehabilitation activities was inadequate. With only four of the facilities in the sample equipped and staffed to provide a full range of rehabilitation services, the first priority for the province is to improve access to rehabilitation services for all long term care patients. Only at that point will it make sense to begin focusing on refining the weights in the patient classification scheme to account for nursing and rehabilitation interactions. For this reason, the resource weights employed in this project assume independence of nursing and rehabilitation needs in setting rehabilitation and nursing resource use.

In summary, specification of rehabilitation weights following a linear model is not inconsistent with the evidence collected during the Provider Activity Study. However, these data suggest that nursing demands may be increased for patients receiving certain modes of rehabilitation. As rehabilitation services are expanded throughout all long term care facilities, this question should be reexamined to determine whether and by how much the resource weights need to be adjusted to maintain equity and efficiency in the reimbursement system.

While the interaction effect between nursing and rehabilitation classes on nursing intensity is not significant at the 0.05 level, the level of significance is sufficiently high to warrant further investigation. The question is whether patients with more complex rehabilitation care requirements need disproportionately more nursing care. That is, does the nursing staff have to work harder to prepare patients for intensive rehabilitation sessions and then continue to provide complementary levels of care after the sessions? Do the OT and/or PT providers actually incorporate nurses into their rehabilitation care plans? Another question is whether the heavier care patients require more intensive care from all providers — i.e., is there also an interaction between functional deficits and rehabilitation resource intensity such that patients in higher categories (e.g. F) require more rehabilitation resources for restorative care than patients in lower categories (e.g. B)? If this were the case RHL weights would vary by ABCAT category. Certainly these issues have important implications for understanding the determinants of rehabilitation effectiveness and the levels of RN staffing required to carry out rehabilitation.

Additional research is also needed to improve the measurement of rehabilitation requirements or rehabilitation potential so that classification is not determined by services prescribed or provided.

Table 29 **Analyses of Variance: Nurse Weight by ABCAT and RHL**
Total Sample: N = 1183

Category (ABCAT)	Rehabilitation Level (RHL)				
	0-Unknown	1-Low	2-Medium	3-High	4-Very High
	(n)	(n)	(n)	(n)	(n)
A 157	19.48 (36)	32.76 (79)	36.71 (21)	38.91 (13)	30.51 (8)
B 250	29.51 (33)	40.88 (111)	52.02 (37)	48.83 (39)	42.64 (39)
C 120	52.37 (12)	54.11 (51)	54.88 (12)	64.82 (25)	74.43 (20)
D 143	53.60 (22)	66.31 (51)	77.44 (15)	70.43 (30)	80.48 (25)
E 130	76.38 (13)	74.36 (38)	111.67 (21)	96.34 (42)	84.01 (16)
F 300	108.48 (4)	101.42 (110)	109.41 (34)	107.45 (120)	112.42 (32)
G 83	99.02 (3)	119.27 (36)	157.93 (5)	116.10 (22)	118.31 (17)

Main Effects

ABCAT F = 164.57 p = 0.00
RHL F = 11.72 p = 0.00

2 Way Interactions

ABCAT, RHL F = 1.30 p = 0.15

V. RECOMMENDATIONS FOR IMPLEMENTATION

Provincial plans for implementation of the Alberta Patient Classification System for Long Term Care Facilities should include provisions for ongoing monitoring of the reliability and validity of the system and for modification of the system as needed. As presented in Section III the ABCAT categories with nursing weights are ready for use by the province. Although additional research would improve measurement of rehabilitation requirements and understanding about the relationship between rehabilitation and nursing resource use, the RHL categories perform reasonably well in distinguishing different resource requirements. The rehabilitation categories (RHL) can be used independently or combined with the ABCAT categories and nursing weights in several ways as discussed in Section IV.

This section presents recommendations for monitoring and modifying the classification system. Part A reviews recommended revisions in the original PRF, now renamed the Patient Classification Form (PCF). Part B is a plan for ongoing reliability evaluation and Part C discusses circumstances that would necessitate updating the system and factors to consider in monitoring the need to do so.

A. Patient Classification Form (PCF)

To implement the classification system a data collection form, the Patient Classification Form, has been developed from the PRF used in the study. The form includes the classification variables and other patient data required for ongoing monitoring and modification of the classification system. The study team and Expert Panel reviewed the PRF and recommended the changes that are described below (see also Appendix E for a copy of the PCF and User Manual).

Changes in Definition of Classification Items

Following the Provider Activity Study, the study team and Expert Panel revised the classification items and instructions for data collection in an attempt to improve reliability. The effects of the procedural and wording changes were evaluated in the January Reliability Study, described in Section II-E. The procedural changes apply to all classification items and include clarification of data sources and rules for resolving discrepancies in data obtained from different sources. The primary source of data is to be the nursing care plan or patient record. However, because record keeping is not always up-to-date and classification data are collected for the 24-hour period preceding classification, the classifiers are instructed to verify the information with the RN in charge of the patient. The RN is designated, rather than the aide or other personnel caring for the patient, because the RN should have an overview of the patient's status for the entire 24-hour period whereas aides may not receive the report from other shifts or have a complete understanding of the patient's health status. Further, if the RN does not have the information, she has the responsibility of obtaining it, which is consistent with her expected role. If there is a discrepancy between the recorded data and the verbal data, the information supplied by the RN will take precedence since the RN should have the most current information.

The wording changes made in the ADL items and the BDL items are designed to reduce ambiguity. Minor changes were made in the ADL items to clarify the distinction between continuous assistance and intermittent assistance. (See Appendices B and E for a comparison of the wording for these items.) Instructions for the ADL items were also clarified to enable classifiers to deal with possible fluctuations during a 24-hour period in the patient's functional performance of the activity in question. During the data collection period, for example, it was not clear how to handle variation in the patient's ability to feed himself at different times of the day. Therefore, the following instructions were added to the manual:

1. For the *eating* indicator, the functional level will be the level at which the patient functions for most of the meals of the day.
2. For *toileting*, the level will be determined by the patient's functional level during the daytime.
3. For *transferring*, due to safety considerations, classifiers will be instructed to record the highest level of assistance required during a 24-hour period.
4. For *dressing*, the level will be determined by the level of assistance the patient requires to dress the *first* time of the day.

For the two BDL indicators the changes are more extensive. First, the distinction between them was clarified as follows: one indicator focuses on the need for intervention directed at preventing injury to self and others; the other indicator focuses on the need for intervention directed at altering coping behavior. In addition to this general clarification of focus, descriptors of the level of intervention were also modified to remove the ambiguity of such terms as "occasional," "intermittent," and "continuous." This was accomplished by defining the required level of intervention in terms of absolute time needed to meet these deficiencies (see Appendix E for the specific wording changes). No changes were made in the wording of the incontinence items.

As noted in the discussion of the January reliability figures (Section II), the wording and procedural changes had the intended effect of improving the reliability of the items. Another possible effect of the changes is on the categorization of patients. The categories were developed with data based on the original definitions. Nevertheless, the study team recommend using the revised definitions of the items and the revised procedures for data collection in that they do improve the reliability and reduce the ambiguity of the items without altering their initial conceptualization. Further, the study team recommends retaining the ABCAT categories and weights since they were based not only on observed data (actual practice), but were validated by the Expert Panel opinion (acceptable standard of practice). The description of categories and the appropriate mean times for care for those categories were reviewed by the Expert Panel, who concurred that the groupings of patients and the associated times made sense from a clinical perspective. The Panel had the revised definitions of the indicators in mind as they reviewed care requirements of patients in each category and made the recommendations regarding appropriate mean times. Therefore, since the categories and weights are not derived from statistical manipulations of actual practice, they should remain valid despite some shifts in distribution due to category redefinition or shifts in provider behavior as the system is implemented. That is, because validation of the weights by the Expert Panel was based on the revised definitions the study team does not recommend recomputing the weights on a purely empirical basis. After the system has been installed for at least a year, a review of the weights could be conducted to determine if any undesirable distortions have emerged.

Other Items to be Retained, Added or Deleted

Additional items are included in the PCF to provide supplemental data for further development and refinement of the classification system and for use in monitoring the need for revision of the categories. In the original PRF an attempt was made to be inclusive until items could be evaluated. Based on the Provider Activity Study and reconceptualization of the classification system and recommendations from the Department of Hospitals and Medical Care the following items not required for classification were deleted:

1. ADL: Bathing, grooming and mobility.
2. BDL: Other behavior.
3. CCL: Medications requiring special monitoring, and other special monitoring.
4. TIPs: Special foot care, special skin care, self-medication programs, pain therapy, splinting, seating, environmental control, special assessment.

Items from the original domains not used for classification but nevertheless retained were: number of medications, the remaining interventions in TIPs and family participation in care. Additional information and wording changes in these items are included in Appendix E. Background and health status items were also retained, though some were revised (see Appendix E).

The mental status items, originally included as a check on the classification variables, were rewritten to reflect observations that staff could readily make to assess patients' memory and orientation to the facility (see Appendix E). The revisions are consistent with the goal of having items based on observable patient attributes and should improve the reliability of the items. A third item in the memory and orientation section focuses on the patients' ability to remember instructions.

Two areas that need further refinement are (1) measurement of behavioral problems and the care requirements they generate; and (2) measurement of rehabilitation requirements. The revised PCF includes some items that can be used for both purposes.

To provide data for the development of indicators of rehabilitation requirements, it may be desirable to add items to the PCF in the future. Items for this purpose could be developed from the rehabilitation evaluation that therapists do on all patients admitted to facilities or referred for service.

B. Recommendation for Reliability Evaluation During the Implementation Phase

While inter-rater reliability was established during the development of the classification system, it is critical to establish a mechanism for ensuring ongoing reliability during its implementation and use in the province. It is important that raters classify patients with similar needs into the same category over time and place.

The primary units of analysis for evaluating reliability are the nursing unit, the facility, and the rater. The unit or facility focus is appropriate when there is reason to believe that error is being systematically introduced at that level by management practices or staff cross-contamination. For example, different record-keeping systems can affect inter-facility agreement if the classification system is dependent upon chart review only. Similarly, different patient populations can affect unit or inter-facility agreement if error is associated with specific patient groups or specific classification categories. Likewise, classification by in-house staff can result in differences between units and facilities due to incentives to manipulate the data.

The proposed procedures for classifying patients within the province do not strongly suggest that reliability checks need to be focused at the nursing unit or facility level. First, the classifications are likely to be done, initially at least, by a team of raters employed by the Government. They will have little incentive to manipulate the data. Second, although recording procedures may vary between facilities, the RN responsible for the patient's care is considered the definitive source of data. It is recognized that error may be associated with specific patient groups or classification categories which, in turn, may be associated with specific units and facilities. This error, however, can be addressed through the sampling procedure described below.

The rater is recommended as the primary unit of analysis for evaluating reliability. This recommendation is based on two factors. First, to a large extent, reliability can be viewed as an educational concern. That is, raters can be trained to obtain high levels of consistency. Second, reliability can be affected by circumstances surrounding data collection, e.g., the number of patients rated in a day, out of town travel, the repetitive nature of the task.

While the rater is proposed as the primary unit of analysis, this should not be the only unit of analysis. Indeed, the data should be analyzed and recorded in a way that will allow systematic evaluation of the classification items, the procedure for classifying patients using PCF data, the instruction manual, and inservice programs for raters.

The mechanism for ensuring reliability can be viewed as a two step process. The first step is to train raters and supervisors in the use of the classification instrument. The second step is to ensure ongoing reliability. For the first step, it is recommended that all raters participate in an initial training session based on the format used during the training for data collectors and supervisors involved in the Provider Activity Study. An outline for evaluating reliability during the training can be found with the training materials. For the second step, it is recommended that raters receive periodic reliability checks that can serve as the basis for planning follow-up inservices and/or refinement of the classification instructions. The method of setting up and evaluating reliability during the second step is outlined below.

Raters

All individuals given the responsibility for classifying patients with the PCF will be evaluated. The supervising rater will be that individual with direct responsibility for training and ongoing inservice programs for raters (i.e., the Classification Coordinator in the Department of Hospitals and Medical Care).

Subjects

The subjects will be 20 nursing home and auxiliary hospital patients purposefully (non randomly) selected by the supervising rater from the annual caseload of each rater. The patients will represent the full range of classification categories found in that caseload. If applicable, at least 5 of the patients will reside at a location distant to the rater. That is, the rater must use out of town accommodations in order to conduct the classification. This stipulation will allow some evaluation of the effect of fatigue (through out-of-town travel) upon the reliability of the ratings.

Procedure

The procedure recommended is a modification and extension of that reported by Horn and Horn (1986) for the Severity of Illness Index (SII). The Horns scheduled reliability checks two weeks after the training sessions, two months after the training sessions, and then quarterly. Reliability checks were followed by an individual conference between the rater and the supervisor. Cases on which there was classification disagreement were discussed. Individual conferences were followed by a group conference between the supervisor and the rater team. This procedure appears to be successful in identifying and rectifying areas of disagreement within relatively short periods of time. The Horns reported the highest level of disagreement (15.5%) at their two week check. By the third check disagreement had fallen to an average of 6.5%.

The procedures for evaluating ongoing reliability of the raters need to be responsive to the procedure for classifying patients within the province. Factors that need consideration include the number of patients per rater per day, the number of raters per supervisor, the geographic distribution of facilities assigned to a single rater, the total number of raters assigned to the total patient population, and the number of classifications per patient per year. Because these decisions are still being made, our recommendations are based on four broad assumptions about what the classification procedure might look like. These assumptions are: (1) At least initially, a Government team will collect the patient classification data; (2) The team will be of a size (small) that requires raters to "schedule" facilities in a serial fashion, over an extended time period. (It is conceivable that raters might spread the classifications out over the year, beginning over when all have been completed); (3) Some raters may have to travel out of town to conduct the classifications; (4) Supervisors will be assigned to more than one rater.

With these assumptions in mind, it is recommended that reliability checks for the Alberta Classification System be scheduled within one month of the training in the use of the PCF. Subsequent checks should be quarterly. After the first year of practice these checks can be reduced to every six months for raters who maintain an agreement rate of 95% or higher. The longer period of time between checks, as compared with Horn and Horn's SII, seems justifiable on two counts. First, the PCF item descriptors are based on clinically observable data and therefore open to less interpretation. Second, the geographic distances between raters, facilities, and supervisor(s) may prohibit more frequent scheduling of checks.

At each quarterly reliability check, five patients per rater will be selected by the supervising rater, in a manner that ensures that the sample criteria will be met by the 20 patients reviewed annually (10 patients after the first year). For example, if the first check is conducted in a nursing home with patients in the lower categories only, subsequent checks will be scheduled in facilities that allow the selection of "higher category" patients.

The patient classification will be conducted in the manner outlined in the PCF instruction manual. The supervising rater will conduct a second and independent classification using the same data sources. Both classifications will be based on the same 24 hour time frame.

The supervisor will compare the classification ratings for each of the five patients. At a minimum, comparison of item level, ADL, BDL, and incontinence level agreement will be made for those patients on whom there is classification disagreement. These comparisons could be made for all patients. In addition, the supervisor will compare the use of the procedure for classifying patients with PCF data. Following these comparisons, individual conferences will be held between the rater and the supervising rater. Cases on which there is classification disagreement will be discussed.

The supervising rater will maintain a log of the classification ratings and of the areas of disagreement. The supervising rater will also maintain a log of anecdotal notes from the conferences. The logs will be used to tailor future inservice programs and when appropriate, may be used to evaluate the individual rater. The logs may also be useful in identifying common problem areas that would more efficiently be handled through a group conference among raters. Perhaps more important, the data from the logs will be aggregated across reliability checks and across raters. This level of data analysis will be useful in determining the need and direction for revision and clarification of items, the procedure for classifying patients, the manual, or inservice programs.

Analysis

Among the questions that will be addressed are these:

1. What is the agreement level for each rater?

   This question will be addressed by calculating percent agreement on the classification data (from the logs) across the most recent 20 patients jointly classified. For example, percent agreement will not be calculated until the end of the first year when 20 reviews are available for each classifier. Reviews from the first check will be dropped out of the analysis when data are available on the fifth check. This method of calculation gives the rater "credit" for improvement while providing a moderately large and therefore stable statistic. The impact of a single score is diminished with increasing sample size. For example, a single disagreement with N = 20 would result in 95% agreement, as compared with 75% if N = 5. An 85% agreement is considered acceptable.

2. What is the agreement level across raters?

   This question will be addressed by computing percent agreement on the aggregated classification reviews of all raters. Data can be organized in a variety of ways, including length of time after the initial training sessions.

3. What is the distribution of agreement across classification categories?

   This question will be addressed by cross tabulating the classification categories of the supervising rater with those of the raters. Cohen's Kappa can be calculated for each category, systematically comparing it with the other categories taken as a group. The relative values will be useful in isolating the types of patients for whom agreement is most difficult to obtain. It should be noted, however, that the absolute values could be misleading with an N of 20.

4. What is the source of disagreement on the classification item?

   This question will be addressed by cross tabulating item, level, and procedure disagreements for patients on whom there is classification disagreement. Anecdotal data will also be used.

C. Updating the Alberta Patient Classification System for Long Term Care Facilities

The Alberta Patient Classification System for Long Term Care Facilities will require periodic revision. Four factors give rise to this need. First, new long term care programs designed to expand the scope of long term care activities (e.g., programs designed to handle patient needs previously met only in the acute care setting) or to shift long term care activities to other programs (e.g., shifting the locus of care for some types of patients in long term care facilities to home care programs) will create the need for a new patient classification system, including a new set of resource intensity weights. As some types of patients are shifted to new settings, the most straightforward revisions are developing entirely new categories of long term care, or deleting one or more categories. More subtle revisions may emerge as patients across multiple categories are affected by new programs. This may involve collapsing two or more categories and redefining a set of new categories from this pooling of patients.

Second, since one objective of patient classification is to specify groups of patients with relatively homogeneous use of resources in their treatment, any new developments in long term care technology create the need for revision of categories and their weights. New rehabilitation techniques, programs, and equipment may result in substantial improvements in quality and efficiency in addressing specified functional deficits. However, the current weighting system may not provide sufficient resources to incorporate cost-increasing improvements; alternatively, cost-saving innovations may result in overpayments to long term care facilities. Moreover, an area previously left outside the scope of long term care practice may be brought into this domain. Technological progress may be discrete and dramatic (e.g., breakthrough programs to treat Alzheimer's disease), or it may be subtle and pervasive. Such changes may require defining new categories and new weights to account for the shifts in patterns of care. While shifts will be gradual, revisions should be undertaken before distortions become severe.

Third, changes in the long term care population may mandate revisions in the patient classification scheme. Dramatic shifts in the age and sex distribution of long term care patients are likely to alter significantly the proportions of patients across categories. Previously small, relatively heterogeneous categories may become sufficiently large to require subdivision into multiple categories. Proliferation of categories in this manner may create the need to examine other low frequency categories for possible combination with each other.

A fourth, and final, factor requiring revision of the patient classification scheme pertains to the resource intensity weights for each category. These may require revision even if there are no policy changes, no technological progress, no demographic shifts, and no changes in patterns of use. Specifically, significant changes in financial factors, such as the *relative* wage rates of long term care personnel require revision of the weights to reflect the net costliness of each category. If RNs are able to increase their wages relative to nursing aides through more effective union bargaining, then patient categories that require relatively more RN time (as compared to aide time) will require higher weights. Without an alteration in the weights, long term care facilities would be *underpaid* for these types of patients. This may undermine quality of care and access for RN intensive patient categories because the weighting system does not reflect the higher wage costs faced by long term care administrators for their RN staff, thereby inducing cutbacks in this type of labor to meet budgetary constraints.

The above rationale for revisions to the long term care patient classification system reflect a passive approach — updating to avoid obsolescence. A proactive approach is also appropriate. The patient classification system and the resource weights represent a set of signals to long term care providers regarding the nature of long term care output and the allocation of resources across various case types. Policy-makers can use this system to change the incentives facing long term care providers, with the ultimate aim of changing their behavior. For example, the relative reimbursement levels for a selected category of patients could be increased to stimulate higher levels of nursing care or rehabilitation delivered to these patients. Hence, the payment system should be viewed as an instrument under the policy-maker's control for improving the overall performance of the Alberta long term care sector.

From a strategic planning and policy evaluation perspective, the province could design a monitoring system to alert policy-makers to the need for revisions to the case-mix system. New long term care programs and policies could be evaluated for their effects on patient care, including changes in long term care benefits under the provincial health insurance programs, as well as other factors related to beneficiaries directly. Such an evaluation would identify the need to revise patient categories to reflect extension of benefits to new types of patients, or alternatively, shifts in the burden of care to or from patients and their families. For example, paying for day care for long term care beneficiaries may reduce the need for institutionalization by enabling patients to live in their homes for a longer time. This may increase the acuity of the case-mix of patients remaining in long term care facilities.

An equally important component of this monitoring process could be an on-going utilization information system. A sample of nursing home/auxiliary hospital residents/patients, stratified by the patient classification system and facility characteristics, could be constructed and comprehensive utilization data collected on these patients. These data could be analyzed to determine variations in the volume and mix of services for each ABCAT category by type of facility. For example, analysis could show whether small rural facilities have fallen behind, relative to large urban facilities, in providing care to the categories of patients with primary behavioral deficits. Since the classification system will include both nursing home and auxiliary hospital residents/patients, construction of a patient sample is fairly straightforward. Utilization data could cover acute hospitalization, physician services, medications, rehabilitation, and nursing care. This would enable tracking of patients through entire *episodes of care* and analysis of the inter-relationships among the various modes of care, including acute care, ambulatory care and long term care. The first step would be linkage of long term care eligibility and use data on a subset of patients within the provincial long term care health care system to focus on long term care episodes. Later, ambulatory and acute care could be added to the system. In this manner, patients who fall and suffer a hip fracture can be tracked from their surgery through rehabilitation and care of any residual deficits and personal care needs.

Once the utilization profiles are established, the province would be in a position to link medical care services to changes in physical and functional status, since each patient staying in the system would be periodically reviewed for reclassification. This data base would be an invaluable resource to enable research on the development of patient classifications based on changes in health status over time, rather than on health status at any one time. Reimbursement policy could be based on retarding deterioration in function or even improving function of nursing home/auxiliary hospital residents and patients, rather than paying for the status quo functional health status distribution. By stimulating research in this area, the province can help realize the feasibility of such an approach.

Finally, linkage of information from the acute care hospital and home care sectors would be required to evaluate the boundaries with long term care facilities. It is quite likely that those boundaries will vary geographically across the province. In some areas, long term care patients may not have access to nursing home/auxiliary beds thus remaining in hospitals, while in others potential home care patients may remain unnecessarily in long term care facilities. A patient classification monitoring system could be designed toward the goal of assuring the desired allocation of patients across hospitals, long term care facilities, home care, and self-care modes (where self-care is the residual category for all persons who are not eligible for any other mode of care).

The adequacy of the weights in the ABCAT system should be assessed through periodic replication of the Provider Activity Study. This would involve a joint effort of long term care experts, providers, and researchers to measure the relative intensity of resource use in existing and any proposed new categories. Since all nursing home/auxiliary hospital residents/patients would be receiving periodic reviews of their health status, assessments, the cost of classification would have already been incurred. The marginal cost of the study would be the intensive effort to collect resource use data on nursing and rehabilitation care. If a sample is used, this may be a relatively modest effort. Such a study should be conducted about every five years.

One of the most critical periods of this patient classification system for long term care in the province is the first two years of implementation. It is important that clear policy goals be defined and that an evaluation strategy be developed prior to implementation. The steps enumerated above are the major portion of such an evaluation. Given such a major program as envisioned by the implementation of the patient classification system and reform of reimbursement, special planning and evaluation efforts are needed over the next 24 to 48 months to help guide the transition.

One important aspect of strategic planning is prediction of likely provider response to the new program. This should guide the definition of questions and measures for the policy evaluation. Will providers alter their behavior in response to the system? What types of responses will be evoked? Can measures to detect these types of behavior be developed? Will providers be cooperative and work to deal with the inevitable complexities of the transition? Will providers simply allow inertia to carry on the behavior of the past, despite efforts to change them? The ultimate task is knowing whether progress is being made towards the overall health goals for the province and if not, why not.

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APPENDIX A
GLOSSARY OF TERMS AND ACRONYMS

GLOSSARY

Case-mix	The distribution (proportion) of patients across a set of categories as defined by a patient classification scheme. (See patient classification.)
Case-mix index	A scalar (single) value computed according to a statistical formula for *weighting* proportions of patients grouped into different categories by a classification system, *aggregating* (adding across categories) and *standardizing* the sum.
Category of care	A class into which patients are grouped according to characteristics (attributes) that define the care they require.
Combined facility	A facility in which nursing home and auxiliary hospital patients are integrated.
Critical thresholds	The item response level(s) which is (are) used for separating patients into clinical groups. For example there are six response options on the eating item: 0, 1, 2, 3, 4, and 8. In determining the level of care a patient requires for ADLs it is necessary to make only five distinctions on the eating item: one or less, 2, 3, 4, and 8. The response options of 1, 2, 3, 4, and 8 are therefore critical thresholds. Zero is not.
Direct/indirect care	Services provided to or on behalf of a patient. Direct care refers to activities requiring the patient's presence, such as bathing, dressing and feeding; indirect care refers to activities that can be done without the patient's presence such as charting or conferring with family or other providers.
Domain	A general type of care required by long term care patients.
Indicator	A patient attribute or characteristic that indicates the type and amount of care a patient will require (a classification variable).
Inter-rater reliability	The degree of consistency obtained in measurements taken by different individuals (raters) assuming no change in the behavior being measured in patient characteristics. (See reliability and rater)
Labor cost weight	Standardized cost of one unit of labor input (wage rate plus fringe benefits), relative to an index occupation, e.g. registered nurse.
Levels of care	An ordinal scale that ranks patients from low to high on the amount of care they require.
Outlier	An extreme value (either high or low) that lies outside of the range of values defined as acceptable.
Nursing personnel	Paid staff who provide nursing care, including registered nurses (RNs), registered nursing assistants (RNAs) and nurses' aides (NAs).
Patient classification	A grouping of patients (nursing home residents and auxiliary hospital patients) into a set of mutually exclusive and exhaustive categories according to similarity in health conditions and functional status and similarity in treatment patterns.
Patient Classification Form	The data collection form to be used to record patient data for classification of patients in Alberta long term care facilities.
Patient classification system	A more comprehensive term than patient classification tool, it refers not only to the set of categories and weights but also to the data used to classify patients and data collection procedures used to obtain the information.
Patient classification tool	A set of categories which are ranked according to care requirements and the rules for placing patients in categories.

Patient Review Form (PRF)	The data collection form used in the Provider Activity Study to record data on patient attributes for use as classification variables.
Patient reviewers (see also rater)	Data collectors who collected information on patient characteristics to be used in classifying their requirements for care.
Pilot study	A trial run of the data collection forms and procedures held prior to the Provider Activity Study.
Predictive validity	The adequacy of an instrument (or classification scheme) in predicting future events known to be related to the phenomenon being measured. For example, a classification scheme that differentiates patients on the basis of care requirments should predict costliness of care, since cost is related to the type and amount of care required.
Provider	Professional and non-professional personnel providing services to patients in long term care facilities.
Provider Activity Study	The collection and analysis of data on the amount of time spent by providers in direct and indirect patient care.
Rater (see also patient reviewer)	The data collector or classifier who records (rates) the patient's performance on the indicators in the Patient Review Form or Patient Classification Form.
Rehabilitation personnel	Staff paid to provide rehabilitation services including occupational therapists, physiotherapists, occupational and physical therapy aides and physical therapy porters.
Reliability	The degree of consistency with which a measure (instrument) measures the attribute it is supposed to measure.
Resource use measure	The average time (in minutes) for care during a 24-hour period weighted by labor costs (computed for each patient). (See labor cost weight.)
Resource weights	Standardized cost of average level and mix of treatment resources (staff time) for a given category of patients. The average resource use measure for all patients in a given category.
Unit time	The time staff spend maintaining the unit as a whole; time not allocated to individual patient care (and hence not included as part of the resource use measure for this study). Unit time includes such activities as ordering supplies, housekeeping, lunch and coffee breaks.
Validity	The degree to which a measure (instrument) measures what it is supposed to measure.

LIST OF ACRONYMS

ABCAT	Alberta Long Term Care Patient Classification Categories (based on ADLs, BDLs and CCLs)
ADL	Activities of Daily Living
BDL	Behaviors of Daily Living
CCL	Continuing Care Level
CMI	Case-Mix Index
EDL	External Demand Level
NA	Nurse's Aide
OT	Occupational Therapist
OTA	Occupational Therapy Aide
PCF	Patient Classification Form
PRF	Patient Review Form
PT	Physical Therapist
PTA	Physical Therapy Aide
RN	Registered Nurse
RNA	Registered Nursing Assistant
RUGs-II	Resource Utilization Groups (version II) - New York State patient classification system
TIPs	Therapeutic Interventions and Programs

APPENDIX B
ORIGINAL PRF (WITH FREQUENCIES) AND USER MANUAL

PATIENT CLASSIFICATION PROJECT

PATIENT REVIEW FORM (PRF)

December 1, 1986

FREQUENCIES: TOTAL SAMPLE

N = 1270

1. Facility Number __
2. Unit Number __ __
3. Patient Number __ __
4. Medical Record Number ________

I. BACKGROUND DATA

5. Date of Initial Admission

¦_¦_¦ ¦_¦_¦ ¦_¦_¦
mo. day year

Age	%
85-104	39.5
75-84	32.5
65-74	13.1
45-64	7.6
25-44	5.3
19-24	1.2
Missing	.8
	100.0

6. Age: Date of Birth

¦_¦_¦ ¦_¦_¦ ¦_¦_¦_¦_¦
mo. day year

7. Sex

			%
456	1	Male	36
811	2	Female	64
			100

8. Marital Status

			%
191	1	Never Married	15.2
307	2	Married	24.5
754	3	Widowed/Divorced/ Separated	60.2
			99.9

II. HEALTH STATUS

A. Current Medical Diagnoses (list by disease category all diagnoses as they appear in the medical record).

	0		1		2	
	N	%	N	%	N	%
1. Blood Diseases	1215	95.7	3	0.2	52	4.1
2. Circulatory Diseases	709	55.8	2	0.2	559	44.0
3. Digestive Disorders	1066	83.9	13	1.0	190	15.0
4. Endocrine Disorders	1077	84.8	2	0.2	191	15.0
5. Genitourinary Disorders	1125	88.6	10	0.8	135	10.6
6. Mental Problems	814	64.1	4	0.3	452	35.6
7. Musculoskeletal Disability	723	56.9	9	0.7	537	42.3
8. Neoplasms	1196	94.2	3	0.2	71	5.6
9. Neurological Motor Dysfunction	656	51.7	10	0.8	603	47.5
10. Pulmonary Disease	1155	90.9	0	9.0	114	0.1
11. Sensory Disorders	999	78.7	11	0.9	260	20.5
12. Skin Diseases	1195	94.1	10	0.8	65	5.1
13. Other	1211	95.4	5	0.4	54	4.3

B. Medical Condition

1. Comatose	1264	No	2	Yes
	0		1	
2. Terminally Ill	1250	No	16	Yes
	0		1	

C. Mental Status.

1. Orientation

%	N		
43.8	554	0	Patient is oriented to person, time, place.
18.7	236	1	Patient is occasionally confused as to person, time, place.
15.6	197	2	Patient is frequently confused as to person, time, place.
21.7	274	3	Patient is always confused.
.3	4	8	Not applicable. Patient is comatose.
100.0	1265		

2. Memory

32.3	407	0	Both short and long-term memory intact.
22.6	284	1	Occasional lapses of short term memory. Able to recognize familiar persons and recall past events.
21.0	264	2	Frequent lapses of short term memory, occasional lapses of long term memory. Needs reminding to complete routine tasks, but recognizes familiar persons.
23.6	297	3	Significant loss of both short term and long term memory; unable to recognize family members, friends most or all of the time. Needs constant presence to complete tasks.
.6	7	8	Not applicable. Patient is comatose.
100.0	1259		

D. Special programs.

1. Patient participates in special programs and/or occupies designated beds as follows:

%	N		
91.6	1157	0	None
.0	0	1	Respite
.2	2	2	Day Care
8.2	104	3	Other (specify) ____________________
100.0			

2. Patient participates in Hospitals and Medical Care approved programs and/or occupies designated beds as follows:

93.8	1181	0	None
2.1	26	1	Mentally Dysfunctional Elderly
4.0	51	2	Young Physically Handicapped
.0	0	3	Active Rehabilitation
.1	1	4	Day Hospital
100.0			

III. ACTIVITIES OF DAILY LIVING (ADLs).

A. Eating: Process of getting food into the stomach, excluding tube feeding and parenteral feeding.

%	N		
43.2	548	0	Eats without assistance; may use special devices.
23.8	302	1	Needs assistance with opening cartons, cutting meat, etc. but does not require another person's presence throughout meal.
11.0	140	2	Needs another person to be present throughout meal to provide encouragement and occasional assistance.
16.1	204	3	Needs complete feeding by another person.
5.1	64	4	Needs continual encouragement to feed self and frequent physical assistance.
0.7	9	8	Patient is tube fed. (See section VI. TIPs)
100.0	1268		

B. Toileting: Process of getting to and from a toilet (or use of other toileting equipment), transferring on and off toilet, cleansing self after elimination and adjusting clothes.

%	N		
34.7	440	0	Needs no assistance.
4.8	61	1	Requires someone to bring equipment or to assist to the bathroom. May need reminding, but otherwise needs no assistance.
9.5	120	2	Requires intermittent supervision for safety or encouragement, or minor physical assistance (for example clothes adjustment or washing hands).
20.0	254	3	Requires one person to provide constant supervision and/or physical assistance with major or all parts of the task or the task will not be completed.
18.6	236	4	Requires two people to provide assistance.
12.4	157	8	Patient does not use toilet for either bowel or bladder elimination (i.e., has a catheter and an ostomy or uses incontinence products. (See section V. CCL)
100.0	1268		

C. Transferring: Process of moving between positions (for example, to/from bed, chair, standing) excluding transfers in/out of bath and on/off toilet.

%	N		
40.9	519	0	Needs no assistance.
6.1	77	1	Depends on equipment; occasionally needs another person to position wheelchair, walker, etc. but otherwise manages transfer alone.
4.7	60	2	Requires intermittent supervision (that is, verbal cueing, guidance) and/or physical assistance for difficult maneuvers only.
18.1	230	3	Requires one person to provide constant guidance, steadiness and/or physical assistance; patient participates in transfer.
29.2	370	4	Requires two or more people to provide constant supervision and/or physically lift; may need mechanical aids.
.9	12	8	Patient is not transferred (i.e., patient is comatose, bedridden).
100.0	1268		

D. Dressing: The process of getting street clothes on or off.

%	N		
21.3	270	0	Dresses/undresses without assistance; may use special devices.
4.3	55	1	Needs help assembling clothes or equipment.
22.1	280	2	Needs someone available for occasional assistance or supervision.
44.2	560	3	Needs total assistance.
7.0	89	4	Needs constant supervision to dress self.
1.0	13	8	Patient does not get dressed (i.e., patient is comatose, bedridden).
100.0	1267		

E. Grooming: The process of maintaining appropriate daily grooming activities such as shaving, mouth care, and hair combing, make-up.

%	N		
24.0	304	0	Needs no assistance; may use special devices.
8.8	112	1	Needs help assembling equipment and/or cueing to perform task.
18.5	234	2	Needs someone available for intermittent assistance (or transfer) to complete tasks.
43.2	547	3	Needs total assistance.
5.5	70	4	Needs constant supervision and minimal physical assistance to complete tasks.
100.0	1267		

F. Bathing: The process of washing the body or body parts including getting to or obtaining bathing water and equipment.

%	N		
1.5	19	0	Needs no assistance; may use special devices.
0.2	3	1	Needs help assembling equipment and/or cueing to perform task.
2.7	34	2	Needs someone available for intermittent assistance (or transfer) to complete tasks.
60.0	762	3	Needs total assistance.
35.4	450	4	Needs constant supervision and minimal physical assistance to complete tasks.
100.0	1268		

G. Mobility: How the patient moves about.

%	N		
44.5	564	0	Walks with no supervision or human assistance. May require mechanical device (for example, a walker). Wheels with no supervision or assistance.
23.4	296	1	Walks or wheels with intermittent supervision (that is, verbal cueing and observation). May require human assistance for difficult parts of walking (for example, stairs, ramps) or difficult maneuvers with wheelchair.
19.7	250	2	Is wheeled. Relies on someone else to move about.
5.4	68	3	Walks with constant stand-by or one-to-one physical assistance.
4.6	58	4	Requires 2 people to move about whether ambulating or being transported.
2.4	31	8	Patient does not move about or leave room at all.
100.0	1267		

H. Rehabilitation in ADL Domain: Refers to type of rehabilitation program patient is receiving for problems with any ADLs. Check for OT and PT Separately.

OT		PT			
%	N	%	N		
47.8	595	48.0	602	0	Patient is not on any program (but rehabilitation programs are available to patients in this facility).
13.2	164	10.4	130	1	Patient receives assessment and consultation only.
7.3	91	19.7	247	2	Patient is on low maintenance program.
4.3	54	9.6	120	3	Patient is on high maintenance program.
1.0	12	2.2	28	4	Patient is on restorative program.
26.4	329	10.1	126	8	No rehab programs are available to patients in this facility.
100.0	1245	100.0	1253		

If H is 1, 2, 3, or 4: Indicate the principal focus of the rehabilitation program in terms of the ADL deficits (greater than 0) checked above for this patient.

CHECK ALL THAT APPLY

%	N	
5.7	72	Eating
3.2	41	Toileting
11.3	143	Transferring
5.5	70	Dressing
2.9	37	Bathing
4.8	61	Grooming
37.2	472	Mobility

IV. BEHAVIOR OF DAILY LIVING (BDLs)

Examples of Behavior:

Complete the following checklist to describe behavior that requires care. Use the description as a guide when completing the three behavioral items (BDLs) at the end of the checklist.

%	N		
1.			Wandering
85.8	1087	0	Behavior not present.
2.9	37	1	Wanders, but does not attempt to leave immediate environment; returns to own room.
3.2	40	2	Wanders, does not attempt to leave but unable to locate own room without assistance.
8.1	103	3	Wanders, will leave immediate environment if not prevented.
2.			Hoarding, Rummaging
89.9	1137	0	Behavior not present.
5.9	75	1	Hoards food, objects picked up in environment but does not search others belongings.
4.2	53	2	Searches others' belongings looking for food or objects.
3.			Aggressive Behavior
66.2	838	0	Behavior not present.
12.7	161	1	Is verbally or physically aggressive, abusive in predictable situations - i.e. when provoked.
10.8	137	2	Occasionally is verbally or physically aggressive with no apparent provocation.
10.2	129	3	Frequently is verbally or physically aggressive without provocation.
4.			Agitated Behavior
59.8	751	0	Behavior not present
9.3	117	1	Cries out, paces, chatters, in response to major changes in routine.
14.6	183	2	Cries out, paces, chatters, in response to minor changes in routine.
16.3	204	3	Cries out, paces, chatters without stimulus.
5.			Suspicious Behavior
84.9	1077	0	Behavior not present
7.3	97	1	Occasionally suspicious of unfamiliar persons.
3.4	43	2	Suspicious of most people but behavior doesn't disrupt daily routine.
4.4	56	3	Suspicious of most people in environment to the extent that it interferes with daily routines (e.g. eating).
6.			Indiscriminant Ingestion of Foreign Substances
99.0	1254	0	Behavior not present
0.5	6	1	Occasionally ingests, eats foreign substances.
0.6	7	2	Ingests foreign substance/objects daily.
7.			Inappropriate Sexual Behavior
97.2	1231	0	Behavior not present
0.8	10	1	Occasionally exposes self, or makes inappropriate remarks.
0.6	7	2	Frequently exposes self, or makes inappropriate remarks.
0.9	11	3	Occasionally touches others inappropriately.
0.6	8	4	Frequently touches others inappropriately.
8.			Inappropriate Smoking
96.0	1217	0	Behavior not present or does not smoke.
2.2	28	1	Occasionally leaves lighted cigarettes unattended.
1.8	23	2	Frequently leaves lighted cigarettes unattended.

%	N	
		9. Alcohol and/or Drug Abuse
99.7	1236	0 Behavior not present or not a problem.
1.2	15	1 Behavior present but not a problem
0.7	9	2 Occasional problem causing danger to self only.
0.2	3	3 Occasional problem causing danger to self and others.
0.2	2	4 Frequent behavior causing danger to self and others
		10. Resists Treatment
67.9	856	0 Behavior not present.
11.6	146	1 Occasionally resists treatment but can be persuaded to comply.
6.5	82	2 Occasionally resists treatment and misses treatment as a result.
7.1	89	3 Frequently resists treatment but eventually complies.
7.0	88	4 Frequently resists treatment and can not be persuaded to comply.
		11. Patient acts sad, depressed or withdrawn
45.8	580	0 Behavior not present.
12.3	156	1 Patient exhibits behavior but participates in activities without supervision.
27.4	346	2 Patient exhibits behavior and needs supervision or encouragement to participate or complete activities.
14.5	183	3 Patient exhibits behavior and refuses to participate or cooperate in activities.
		12. Patient demands attention for somatic or psychological complaints.
77.8	979	0 Behavior not present.
13.5	170	1 Patient intermittently demands attention.
8.7	109	2 Patient constantly demands attention.
		13. Suicidal Behavior
98.1	1242	0 Behavior not present
0.8	10	1 Verbalizes ideas of suicide, no prior threats or attempts.
0.4	5	2 Verbalizes ideas of suicide history of prior threats or attempts.
0.2	2	3 Verbalizes plans for suicide.
0.6	7	4 Has attempted suicide.
		14. Angry, Hostile Behavior
67.3	849	0 Behavior not present.
17.2	217	1 Exhibits anger, hostility in predictable situations.
13.3	168	2 Occasionally exhibits anger, hostility in unpredictable situations.
2.2	28	3 Continually exhibits anger, hostility.

15. Other (Specify ____)

____

A. Potential for injury to self or others: Presence of behavior that places self or others at risk for psycho-social or physical injury and requires intervention.

%	N	
52.8	667	0 No intervention required.
18.7	236	1 Occasional intermittent intervention required.
14.8	187	2 Frequent intermittent intervention required.
13.8	174	3 Almost constant intervention required.

B. Ineffective Coping: Presence of behavior that reflects inability to deal appropriately with situations or with individuals and requires intervention.

%	N	
45.6	577	0 No intervention required.
26.7	337	1 Occasional intermittent intervention required.
18.2	230	2 Frequent intermittent intervention required.
9.5	120	3 Almost constant intervention required.

C. Other Behavioral Problems: The presence of behavior that is considered a "normal" response or effective coping but which requires intervention from the staff - e.g. grieving after the death of a friend or relative.

%	N	
84.8	1072	0 No intervention required.
8.3	105	1 Occasional intermittent intervention required.
4.2	53	2 Frequent intermittent intervention required.
2.7	34	3 Almost constant intervention required.

D. Rehabilitation in BDL Domain: Refers to type of rehabilitation program patient is receiving for problems with any BDLs. Check for OT and PT Separately.

OT		PT		
%	N	%	N	
62.5	786	87.4	1087	0 Patient is not on any program (but rehabilitation programs are available in this facility).
2.4	30	1.2	15	1 Patient receives assessment and consultation only.
3.8	48	0.7	9	2 Patient is on low maintenance program.
2.8	35	0.4	5	3 Patient is on high maintenance program.
0.7	0	0.1	1	4 Patient is on restorative program.
27.8	349	10.1	126	8 No appropriate rehab programs available in this facility.
100.0	1257	100.0	1243	

If D is 1, 2, 3, or 4: Indicate the principal focus of the rehabilitation program in terms of the BDL deficits (greater than 0) checked above for this patient.

CHECK ALL THAT APPLY

%		
2.4	30	Potential for Injury to self or others Specify behavior ____________
4.9	62	Ineffective Coping Specify behavior ____________
4.3	54	Other Behavioral Problems Specify behavior ____________

V. CONTINUING CARE LEVEL (CCL)

A. Urinary Incontinence/Catheter Care: Any inappropriate voiding causing hygienic health risk.

%	N	
42.7	541	0 None
19.3	245	1 Occasional incontinence or no incontinence but requires routine catheter care.
30.3	384	2 Frequent incontinence requiring management procedures.
7.7	98	3 Frequent incontinence requiring a retraining program.
100.0	1268	

B. Fecal Incontinence/Ostomy Care: Any inappropriate bowel elimination causing hygienic or health risk.

%	N		
58.6	742	0	None
11.8	150	1	Occasional incontinence or no incontinence but requires routine ostomy care.
24.5	310	2	Frequent incontinence requiring management.
5.1	64	3	Frequent incontinence requiring bowel retraining.
100.0	1266		

C. Medications: Number of medications ordered and current, including PRN medication.

#	N	%
0	3	0.3
1-8	757	65.1
9-27	402	34.6

D. Medications Requiring Special Monitoring: Refers to monitoring for a change in condition based on medication effect that requires including blood pressure, examination of blood, urine, stool or other means of checking for effects of medications; excluding routine verbal checking.

Receives the following medications that require special monitoring:

	NO	%	YES	%
a. digoxin	1014	80.6	224	19.4
b. diuretics	844	66.9	418	33.1
c. thyroid extracts	1185	94.3	72	5.7
d. anticonvulsants	1143	91.1	112	8.9
e. anticoagulants	1239	98.6	17	1.4
f. lithium	1246	99.3	9	0.7
g. hypoglycemic agents	1146	91.0	113	9.0
h. chemotherapeutic agents	1239	98.6	17	1.4
i. antihypertensives	1121	88.3	135	10.7
j. other: (specify) ____________________	921	88.1	124	11.9

E. Other Conditions Requiring Special Monitoring: Refers to monitoring for unstable or rapidly changing conditions that require monitoring more than 3 times per day.

Requires special monitoring for the following conditions:

	NO	%	YES	%
a. circulatory problems	1205	96.0	50	4.0
b. skin integrity	1102	87.4	159	12.6
c. mental status (eg. level of consciousness following fall)	1173	93.5	82	6.5
d. nutritional & fluid intake	1120	88.8	141	11.2
e. other (specify) ____________________	972	96.7	33	3.3

F. Communication:

%	N		
50.4	637	0	Communication is unimpaired.
13.5	171	1	Patient has difficulty communicating to others but understands others speech or gestures.
8.0	101	2	Patient has difficulty understanding others but can communicate to them without difficulty.
28.1	355	3	Patient has impaired ability to communicate to others and to understand others' communication.
100.0	1264		

If F is 1, 2, 3: Indicate the source of the communication problem by checking items below.

CHECK ALL THAT APPLY

%	N	
26.7	339	Physical impairment
7.6	97	Language barrier
15.5	197	Other (specify) ____________________

VI. THERAPEUTIC INTERVENTIONS AND PROGRAMS (TIPs): Special treatments ordered by a physician and carried out by staff.

	NO	%	YES	%
Chest Care	1238	98.1	24	1.9
Oxygen	1229	97.2	35	2.8
Suctioning	1245	98.5	19	1.5
Parenteral Fluids	1264	100.0	0	0.0
Tube Feeding	1253	99.2	10	0.8
Wound Care, including chronic skin ulcers.	1162	92.1	99	7.9
Special Foot Care	1148	91.3	110	8.7
Special Skin Care (eg. psoriasis, skin tears)	1009	80.5	245	19.5

	NO	%	YES	%
Self-medication Program	1248	99.0	12	1.0
Pain Therapy (eg. TNS,biofeedback)	1230	97.5	31	2.5
Splinting	1208	95.8	53	4.2
Seating	1210	96.0	51	4.0
Environmental Control Training	1245	98.8	15	1.5
Special Assessments/ Diagnostic Workups	1244	98.7	17	1.3
Other. (Specify) ____________________	972	91.6	89	8.4

- 9 -

EXTERNAL DEMAND LEVEL (EDL): Factors external to the patient that alter individuals level of dependency or the care required from the staff.

A. Family Participation in Care: Behavior of the family or friends' that alters the patient's need for attention from the staff.

%	N	
59.7	745	1 Family frequently provides physical assistance or social support.
22.2	277	2 Family occasionally provides physical assistance or social support.
8.3	103	3 Family never provides assistance or support or patient has no family.
5.1	63	4 Family occasionally requires additional input from staff.
4.7	58	5 Family frequently requires additional input from staff.
100.0	1247	

Date of Review ______ ______ __________
day month year

Reviewer ______________________________

Revised
September 12, 1986

PATIENT CLASSIFICATION PROJECT
PROVIDER ACTIVITY STUDY

INSTRUCTIONS: PATIENT REVIEW FORM (PRF)

GENERAL COMMENTS:

1. USING THESE INSTRUCTIONS - These instructions should be read before completing the PRF and should be kept with the PRFs as they are being completed. FREQUENT REFERENCE TO THE INSTRUCTIONS WILL BE NEEDED TO ACCURATELY COMPLETE THE PRF.

2. ANSWER ALL QUESTIONS - Answer all questions by making a check mark in the appropriate space. DO NOT LEAVE ANY QUESTIONS TOTALLY BLANK.

3. TIME PERIOD - All questions refer to the current status of the patient unless stated otherwise. However, because documentation may not be done daily the medical record should be reviewed for the past month for documentation of the presence of the problem or condition.

4. FREQUENCY - Some items specify how often something needs to occur to meet the qualifing condition. For example, respiratory care needs to occur daily or the PRF cannot be checked "Yes" for this patient.

5. DOCUMENTATION - Some of the questions require specific medical record documentation to be present. Otherwise, the question cannot be answered "yes" for the patient.

6. EXCLUSIONS - Some of the questions specifically state to omit certain types of care or behavior when answering the question.

7. VERIFICATION - After the patient review form is completed the responses should be reviewed with the nurse responsible for the patient on the day the review is done. This provides a second check on the data and the accuracy of the information. If the nurse's description of the patient differs from that obtained from other sources, the reviewer should seek verification from another source, if possible, and record the data that is supported by more than one source. Ambiguous, discrepant, or questionable information should be noted and reported to the data supervisor at the time of debriefing.

INSTRUCTIONS FOR COMPLETING PRF

I. BACKGROUND DATA

1. FACILITY NUMBER: The one digit number assigned to your facility for the purpose of this project.

2. UNIT NUMBER: The two digit number assigned to each nursing unit in your facility, for the purpose of this data collection.

3. PATIENT NUMBER: The two digit number assigned to the patient for purposes of this study.

4. MEDICAL RECORD NUMBER: Enter the unique number assigned by the facility to identify each patient.

5. DATE OF INITIAL ADMISSION: Enter the month, day and year the patient entered the present facility at the present level of care (Nursing Home or Auxiliary Hospital). For example, if the patient was transferred from the Nursing Home level to the Auxiliary Hospital level, within your facility, it would be considered an initial admission to the Auxiliary Hospital level. If the patient were transferred from another facility, it would be an initial admission to your facility. As another example, consider a patient that was admitted to a hospital from your facility, and looses his or her bed. If this patient is eventually readmitted to your facility, use the original admission date to complete this item.

II. MEDICAL STATUS

A. MEDICAL DIAGNOSES: List all current diagnoses as they appear in the medical record by disease category. Check if the diagnosis was made less than or more than six months ago. Examples of common diagnoses from each category are listed below:

	I C D 9 Code Numbers
Blood and Blood-forming Organ Disorders	
Anemia	285
Other blood disorders	001

Circulatory Diseases

Angina pectoris	413
Arteriosclerosis, generalized	440
Arteriosclerotic cardiovascular disease (ASCVD)	429
Arteriosclerotic heart disease (ASHD)	414
Cardiac dysrhythmias, unspecified	427
Chronic ischemic heart disease	414
Congestive heart failure with acute pulmonary edema	428
Hypertension, essential	401
Hypertensive heart disease	402
Peripheral vascular disease	443
Other circulatory diseases	002

Digestive Disorders

Esophogeal diseases	530
GI ulcers	531
Gastroenteritis or colitis	558
Chronic liver disease, cirrhosis	571
Pancreatic disease	577
Chronic renal failure	585
Kidney infections	590
Other disorders of digestion and excretion	003

Endocrine and Metabolic Disorders

Diabetes, non-insulin dependent	250
Diabetes, insulin dependent	250
Hypothyroidism	244
Fluid electrolyte imbalance or disorder	276
Other endocrine and metabolic disorders	004

Genitourinary Disorders

Urinary tract infection, site not specified	599
Other genitourinary disorders	005

Mental Problems

Alcoholism, chronic	303
Alzheimer's disease	331
Arteriosclerotic dementia	290
Chronic organic brain syndrome	294
Depression	311
Mental disorder (non-psychotic) following organic brain damage	310
Mental retardation	319
Organic personality syndrome	310
Presenile dementia	290
Psychosis	298
Schizophrenia	295
Senile dementia	290
Senility without psychosis	797
Other mental problems	006

Musculoskeletal Disability

Arthritis, excluding osteoarthrosis	716
Fracture, head of femur	820
Fracture, other unspecified parts of femur	821
Fracture, vertebra	805
Hip fracture, NOS	820
Osteoarthritis, generalized	715
Osteoarthritis, unspecified whether generalized or localized	715
Osteoporosis	733
Rheumatoid arthritis	714
Traumatic amputation of leg, late effect	905
Other musculoskeletal disorders	007

Neoplasms

Carcinoma of female breast (if removed, use V10.3)	174
Carcinoma of colon	153
Carcinoma of lung	162
Carcinomatosis, generalized cancer	199
Other neoplasms	008

Neurological Motor Dysfunction

Cerebral arteriosclerosis	437
Cerebral degeneration, unspecified	331
Cerebral infarction	434
Cerebral palsy	343
Cerebral thrombosis	434
Cerebrovascular accident, acute phase	436
Cerebrovascular accident, late effects	438
Convulsions	780
Hemiplegia	431
Huntington's choreae	333
Multiple sclerosis	340
Parkinson's disease	332
Quadriplegia	344
Transient ischemic attacks (TIAs)	435
Other neurological dysfunction	009

Pulmonary Disease

Chronic obstructive pulmonary disease, (COPD)	496
Pnuemonia, organism unspecified	486
Upperrespiratory infection, acute	465
Other pulmonary disease	010

Sensory Disorders

Blindness and low vision	369
Cataract	366
Glaucoma, unspecified	365
Hearing loss	389
Other sensory disorders	011

Skin Disorders

Chronic skin ulcer	707
Decubitus ulcer	707
Other skin disorders	012

B. MEDICAL CONDITIONS: For a YES to be answered for these conditions, all of the following must be true:

1. Condition must currently exist.
2. Written support as to cause and active treatment plan must appear in medical record.
3. See definitions in chart below. Examples are for clarification and are not intended to be all inclusive.

If written documentation is not available, check NO for these conditions.

DEFINITION	EXAMPLE CAUSES	EXAMPLES OF TREATMENTS
COMATOSE: Unconsciousness, cannot be aroused, and at most can respond only to powerful stimuli.	Brain insult Hepatic encephalopathy Cardiovascular accident	Total ADL Intake and output Parenteral feeding
TERMINALLY ILL: Professional prognosis (judgment) is that patient is rapidly deteriorating and will likely die within a year.	End stages of: Carcinoma, Renal disease, Cardiac diseases	Palliative care Social/ emotional support

C. MENTAL STATUS: Data on the patient's orientation and memory are not likely to be in the chart and therefore should be obtained from the nurse in charge of the unit.

D. SPECIAL PROGRAMS: Special programs are defined as follows:

Active Rehab Program. Those Auxiliary Hospital beds designated for short term intensive rehabilitation of patients who have transferred from acute care hospital settings.

Day Care Program. An organized group program provided during the day, offering planned social and recreational activities, some personal care and supervision, food services and sanitary health services.

Respite Program. That service which provides intermittent periods of care for persons who usually receive assisted or supervised care from a caregiver available on a 24-hour, seven day per week basis.

Mentally Dysfunctional Elderly. Program that provides specialized service to individuals with moderate to severe dementia with associated problem behaviors.

Young Physically Handicapped. A program that provides specialized services to adults between 18 and 59 years of age who have a physical disability which is chronic in nature and which interferes with ADL functioning. These services are intended to maximize patients potential to be reintegrated into the community.

Day Hospital. An organized day program providing diagnostic, rehabilitative and/or therapeutic health services for some/part of the week on a scheduled basis.

III. ACTIVITIES OF DAILY LIVING: EATING, MOBILITY, TRANSFER, TOILETING

In answering ADL questions determine how the patient completed each ADL on the day of review.

A. DEFINITIONS

The following terms are used in the ADL questions:

SUPERVISION means verbal encouragement and observation, not physical hands on care.

ASSISTANCE means physical hands on care.

INTERMITTENT means a staff person does not have to be present during the entire activity; nor does the help have to be on a one-to-one basis.

CONSTANT means one-to-one care requiring a staff person to be present during the entire activity. Otherwise the activity will not be completed by the patient.

Note how these terms are used together in the ADLs. For example, there is intermittent supervision and intermittent assistance.

B. CLARIFICATION OF ADL RESPONSES

EATING:

- Patient may require a staff person's continual presence and help because patient tends to choke, has a swallowing problem, is learning to feed self or is quite confused and forgets to eat.

TOILETING:

- If patient has both an indwelling catheter and an ostomy or uses incontinence products and is not taken to the toilet, check B. Incontinent patient is described under Continuing Care Level, Section V.

TRANSFER:

Exclude transfers to bath and toilet. Also exclude positioning and turning. To justify checking four (4), there must be a logical medical reason why the patient needs the help of two people to transfer. For example, two people may be required because the patient is obese, has contractures, has fractures (or stress fracture potential), has attached equipment that makes it difficult (for example, tubes).

DRESSING:

If patient is bedridden and clothed only in gowns or pajamas, check 8.

BATHING AND GROOMING:

These items are applicable to all patients and are self explanatory.

MOBILITY:

Includes use of electric wheelchairs. Constant supervision and/or assistance may be required if the patient cannot maintain balance, has a history of falls, has stress fracture potential or is relearning to ambulate.

REHABILITATION FOR ADL DOMAIN:

The goal of the program as documented in the medical record should be used to identify the type of program the patient is on. Be sure to check with the rehab therapists in the facility if there is no documentation in the record.

Definitions: <ins>High Maintenance</ins>: The goal is to provide a continuing program of therapy that will (1) maintain physical and mental status at optimal levels, (2) ensure continuing comfort (pain management) and (3) maintain a therapeutic environment for optimal patient functioning.

Low Maintenance: The goal is to ensure that the patient remains at the optimal functional level allowed by the disease process with minimal or decreasing intervention (the patient is at a plateau).

Restoration: Goal is to improve optimal functional level within a specified time frame or to achieve possible discharge.

Identify type of program for occupational and physical therapy separately, since, for example, patients may be receiving OT consultation services and PT high maintenance service. To answer the question about the focus of the rehab programs, check all that apply for whatever rehabilitation services (OT and PT) the patient is receiving.

IV. BEHAVIORS OF DAILY LIVING

In answering the BDL questions, checking with the nurse in charge will be necessary. For any BDL to qualify as present, an active treatment plan for the behavioral problem must be in current use.

A. DEFINITIONS - The terms used on the PRF should be interpreted only as they are defined below.

UNPREDICTABLE BEHAVIOR: The staff cannot foretell when (that is, under what circumstances) the patient will exhibit the behavioral problem. There is no evident pattern.

PREDICTABLE BEHAVIOR: Based on observations and experiences with the patient, the staff can discern and plan in advance when a patient will exhibit a behavioral problem. The behavioral problem may occur during activities of daily living (for example, bathing), specific treatments (for example, contracture care, ambulation exercises) or for a logical reason, such as being wrongly criticized, bumped into, etc.

SUPERVISION means verbal encouragement and observation, not physical hands on care.

ASSISTANCE means physical hands on care.

INTERVENTION: Interventions for behaviors are any physical, nursing, medical, or pharmacological interventions aimed at limiting, controlling, or extinquishing behavioral problems. They can include restraint, redirection, behavior modification or retraining, drug or social interventions.

INTERMITTENT: Periodic, non-constant, or occasional behavioral interventions.

CONSTANT: Interventions requiring ongoing monitoring or presence of staff member, such as constant restraints, behavior modification or drug therapy.

B. CLARIFICATION OF BDL RESPONSES

The three indicators, Potential for Injury to self and others and Ineffective Coping, and Other Behavior Problems are intended to reflect the amount of care the patient requires to control the behavior in question. The examples are intended to provide data on the specific behavior that the patient exhibits. They are not an exhaustive list. If other problem behaviors requiring intervention they should be noted under other. For example, manipulative behavior could be included by checking other and writing in a description of the behavior. Reviewing the specific examples should aid the classifier in determining the appropriate level of care required even though there is no direct formula for translating presence of specific behavior into care requirements. If patients exhibit more than one behavior, the highest level of intervention required should be checked under the appropriate BDL.

POTENTIAL FOR INJURY TO SELF AND OTHERS

Three types of behavior which require intervention are included: behavior that carries a risk of injury to the patient himself, behavior that has a risk of provoking others to violence and thereby injuring the patient or violent behavior that is directed toward others and places them at risk for injury. The patient may engage in this behavior without conscious awareness of the risks involved.

INEFFECTIVE COPING

Patients who do not cope effectively are usually aware of their actions. However, their physical condition may make them emotionally liabile as in the case of multiple sclerosis patients. Also included are depressed and withdrawn patients.

OTHER BEHAVIOR REQUIRING INTERVENTION

Not all behavior requiring intervention from staff is "abnormal". This category is intended to capture those behaviors such as grieving that place demands on staff but are considered a normal response to loss.

REHABILITATION FOR ADL DOMAIN:

The goal of the program as documented in the medical record should be used to identify the type of program the patient is on. Be sure to check with the rehab therapists in the facility if ther eis no documentation in the record.

Defintions: High Maintenance: The goal is to provide a continuing program of therapy that will (1) maintain physical and mental status at optimal levels, (2) ensure continuing comfort (pain management) and (3) maintain a therapeutic environment for optimal patient functioning.

Low Maintenance: The goal is to ensure that the patient remains at the optimal functional level allowed by the disease process with minimal or decreasing intervention (the patient is at a plateau).

Restoration: Goal is to improve optimal functional level within a specified time frame or to achieve possible discharge.

Identify type of program for occupational and physical therapy separately, since, for example, patients may be receiving OT consultation services and PT high maintenance service. To answer the question about the focus of the rehab programs, check all that apply for whatever rehabilitation services (OT and PT) the patient is receiving.

V. CONTINUING CARE LEVEL.

URINARY INCONTINENCE:

Catheter Care - refers to cleaning, insertion or replacement and maintenance of indwelling catheter.

Management Procedures - refers to routine use of incontinence products, intermittent catheterization and cleansing and inspection of the perineal area to avoid infection or sking breakdown.

Retraining - refers to programs of routine toileting to establish patterns of continence and the teaching and supervision of self catheterization.

FECAL INCONTINENCE:

Management - refers to routine use of incontinence products, administration of enemas, suppositories and cleansing and inspection of area to prevent breakdown. Does not include routine ostomy care.

Retraining - refers to programs of toileting to establish patterns of continence. Teaching and supervision of ostomy care self administration of enemas.

MEDICATIONS:

Record number of medications currently ordered whether or not they have been given during the last 24 hour period.

All medications that require special monitoring should be recorded. Check other and write in, any medications not listed that require monitoring. Monitoring refers to any procedure employed to check the physiologic response of the patient to the medication including blood pressure checks as well as examination of specimen. A Yes response indicates the patient is currently receiving the medication only - not that the monitoring is done.

SPECIAL MONITORING:

Other conditions requiring special monitoring.

VI. THERAPEUTIC INTERVENTIONS AND PROGRAMS: For a "YES" to be answered for any of these treatments the following conditions must be met:

1. Treatment must be current and should be provided by regular staff who ordinarily are employed by the facility but may be hired on a contractual basis..

2. Treatment must be given daily as specified below.

3. Physician order must be written which specified the cause/need for this treatment and for the specified frequency.

DEFINITION	SPECIFIC FREQUENCY
Chest Care: Includes nebulizations, delivery of aerosol medication, postural drainage, percussion, vibration, and assisted coughing and deep breathing.	Daily
Oxygen: Administration per nasal cannula, mask, hood or artificial airway.	Daily
Suctioning: Removal of secretions from airway and pharynx on routine basis. May be done after percussion.	Daily
Parenteral Fluids: Routine administration of IV fluids. Inspection and maintenance of IV or central line.	Daily
Tube Feeding: Administration of oral feedings and medications through nasal-gastric and oral-gastric tubes to maintain nutritional status.	Daily
Wound Care: Care of subcutaneous lesions resulting from surgery, trauma or open ulcers. Includes dressing changes debridement, use of ultra violet light and other special treatments to facilitate wound healing.	Daily
Special Foot Care: Routine attention to skin integrity of feet, quality of nails and peripheral circulation. Done with patients at high risk for developing chronic ulcers.	Daily
Special Skin Care: Daily treatment such as tar baths, lotions, or ultra violet light given to diagnosed skin problem.	Daily
Self-medication Program: A defined program designed to train the patient to assume the responsibility for taking medications.	Daily
Pain Therapy: Individualized programs developed with the patient to help manage chronic or acute pain and increase comfort. Includes TNS and biofeedback.	Daily
Splinting: Application of devices used to support or immobilize parts of the musculoskeletal system. Employed to manage fractures, sprains, degenerative disorders or to maintain a part in position of function.	Daily
Seating: Positioning or devices used to position patients with altered levels of consciousness or limited mobility to prevent contractures and maintain normal alignment, joint functioning and comfort.	Daily

DEFINITION	SPECIFIC FREQUENCY
Environmental Control Training: Training in the use of mechanical devices and computer aids to control the environment.	Daily
Special Assessment/Diagnostic Workups: Includes those specifically ordered diagnostic tests that require preparation of the patient by the staff even if the test is done outside of the facility.	On Day of Review

VII. EXTERNAL DEMAND LEVEL

Family participation in care. This item refers to any behavior of the patient's family or friends that either increases or decreases his need for care. This includes behavior that alters the patient's need for care or that directly places demands on the staff. For example, a patient's family or visitors may upset the patient.

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APPENDIX C
DATA COLLECTION FORMS AND MANUALS

- Manual for Data Collection Procedures
- Facility Manual: Instructions for Use of Forms (Includes Forms A, B, C and D with hypothetical data)
- Forms E, F, G, H, I and J

MANUAL FOR DATA COLLECTION PROCEDURES

September, 1986

PATIENT CLASSIFICATION TOOL DEVELOPMENT PROJECT

PROVIDER STUDY

Prepared for study team by

P. Giovannetti
Faculty of Nursing
University of Alberta

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I QUICK REFERENCE

1.1 Project Staff

Dr. Joyce Semradek - Principal Investigator
Oregon Health Sciences University

Dr. Phyllis Giovannetti - Co-Investigator
University of Alberta

Hotline

Dr. Giovannetti has overall responsibility for the Provider Study and is acting as the central contact person for the study team. Her office number is 432-2996 (Secretary - Brenda Hinton). Her home number is 922-4080. Both numbers are for Edmonton.

Data Supervisors

Kate Brennan
Jane Buchan
Celia Capuzzi
June Jahn
Debbie Leiber
Susan Will

Classifiers

Florence Chappel
Elizabeth Chomin
Sandra Daly
Lou Farkas
Eleanor Fergusson
Valerie Ferguson
Corrine Guenard
Nel Hayewood
Jean Hollo
Peggy Hughes
Phyllis Jones
Barbara Kerr
Beverley Manderscheid
Sheila McPherson
Trish Philp
Susan Taniguchi
Esther Ulan

1.2 Facility Study Schedule

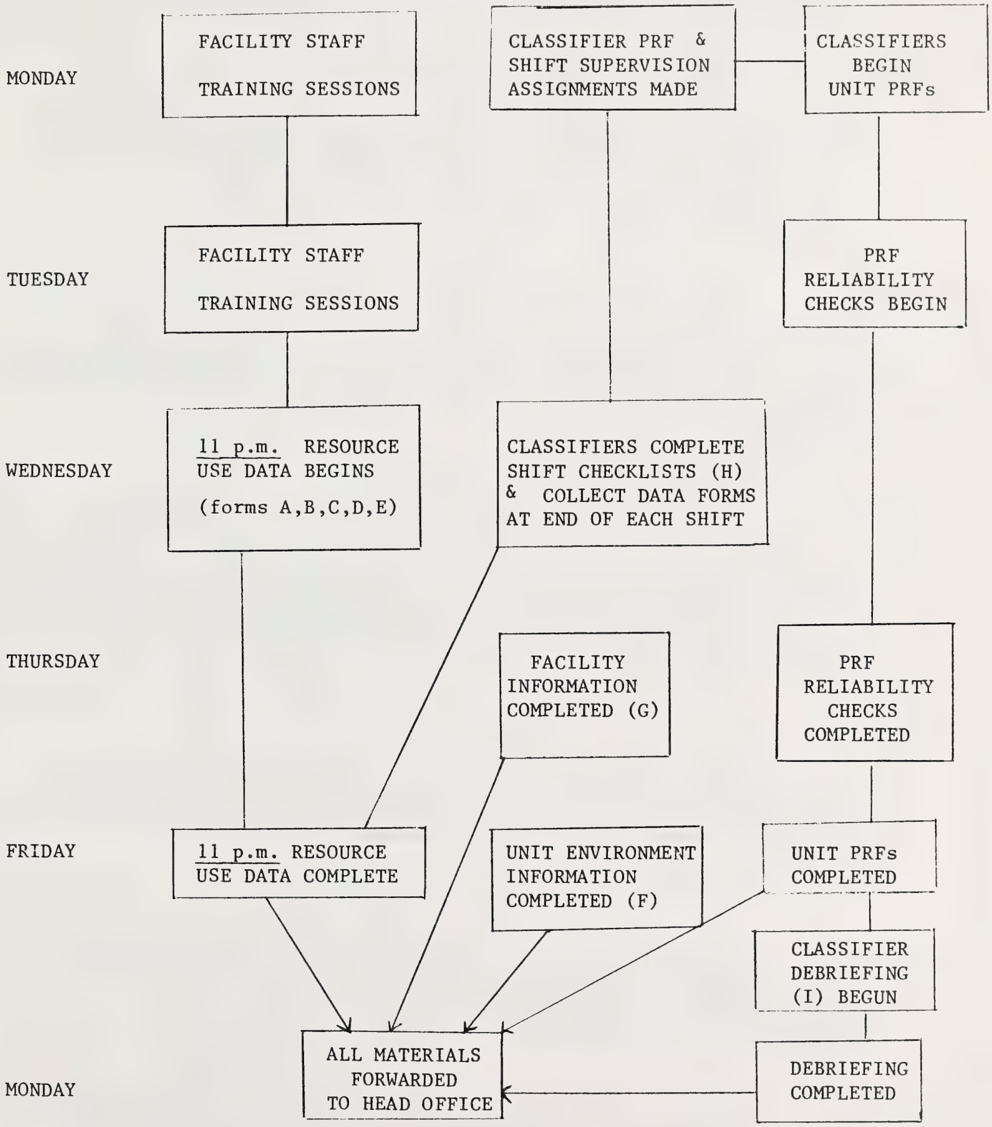
	Week 1 (Sept.22-26)	Week 2 (Sept.29-Oct.3)	Week 3 (Oct. 6-10)	Week 4* (Oct. 14-17)
CLASSIFIERS				
Bev Manderscheid	Dickensfield	Dickensfield	Dickensfield	Westlock
Sheila McPherson	Dickensfield	Dickensfield	Dickensfield	Westlock
Corrine Guenard	Dickensfield	Dickensfield	Dickensfield	Westlock
Liz Chomin	Dickensfield	Dickensfield	Dickensfield	Westlock
Susan Tanaguchi	Jubilee	Jubilee		Westlock
Esther Ulan	Jubilee	Jubilee		Cardston
Barbara Kerr		Jubilee		Cardston
Jean Hollo	Bethany	Bethany	Bethany	Bethany
Florence Chappel	Bethany	Bethany	Bethany	Bethany
Nel Hayewood	Bethany	Bethany	Bethany	Bethany
Eleanor Fergusson	Bethany	Bethany	Bethany	Bethany
Trish Philp	Bethany	Bethany		Cardston
Lou Farkas	Midnapore	Midnapore		Didsbury
Sandra Daly	Midnapore	Midanpore		Didsbury
Valerie Ferguson			Lethbridge	Cardston
Phyllis Jones			Lethbridge	Lethbridge
Peggy Hughes			Lethbridge	Lethbridge

* October 13 is Thanksgiving Day - No classifications

DATA SUPERVISORS

Jane Buchan	Dickensfield and Westlock
June Jahn	Jubilee and Lethbridge
Debbie Leiber	Midanpore
Kate Brennan	Bethany
Celia Capuzzi	Didsbury
Susan Will	Cardston

1.3 Flow Chart for Data Collection Process


MONDAY
FACILITY STAFF TRAINING SESSIONS
CLASSIFIER PRF & SHIFT SUPERVISION ASSIGNMENTS MADE
CLASSIFIERS BEGIN UNIT PRFs
TUESDAY
FACILITY STAFF TRAINING SESSIONS
PRF RELIABILITY CHECKS BEGIN
WEDNESDAY
11 p.m. RESOURCE USE DATA BEGINS (forms A,B,C,D,E)
CLASSIFIERS COMPLETE SHIFT CHECKLISTS (H) & COLLECT DATA FORMS AT END OF EACH SHIFT
THURSDAY
FACILITY INFORMATION COMPLETED (G)
PRF RELIABILITY CHECKS COMPLETED
FRIDAY
11 p.m. RESOURCE USE DATA COMPLETE
UNIT ENVIRONMENT INFORMATION COMPLETED (F)
UNIT PRFs COMPLETED
CLASSIFIER DEBRIEFING (I) BEGUN
MONDAY
ALL MATERIALS FORWARDED TO HEAD OFFICE
DEBRIEFING COMPLETED

1.4 Overview of Study Personnel, Forms and Definitions

1. Personnel

a) Classifier

Professionals (RNs, PT, OT) with long term care experience, hired by the study team to collect patient classification information on patients in the facility. Classifiers will be responsible to the Data Supervisor and will assist in the supervision of facility staff in the completion of their time forms.

b) Provider

Facility staff, that is nurses, rehabilitation personnel and others who provide direct care to the patients in the facility. They will be expected to attend an orientation and training session prior to the data collection period and to complete time forms while on duty during the three-day study period.

c) Data Supervisor

A nurse researcher who is part of the study team and who will be at the facility during the data collection period. She will supervise all aspects of data collection and will act as a liaison between the study team, facility, and the patient. She will also conduct regular reliability checks with each classifier working in the facility.

2. Forms

a) PRF (Patient Review Form)

This form is to be completed by the classifier and was developed for the patient classification project to gather information about patient characteristics in order to test the patient classification system.

b) Individual Patient Care (Form A)

The Individual Patient Care Form is used by all staff assigned to the unit during the study period to record the time spent giving direct and indirect care to each individual patient on the unit.

c) Group Activity (Form B)

The Group Activity Form is used by all staff assigned to a unit during the study period to record the time spent in providing care (directly or indirectly) to more than one patient at a time.

d) Medication (Form C)

A Medication Form is used by RN staff assigned to the unit during the study period. The nurse records the time spent in preparing, administering and charting medications.

e) Unit Time/Shift Summary (Form D)

This form is completed by all staff assigned to the unit during the study period. One half of the form is used to record time that is spent in activities that are not directly related to a specific patient or patients. The other half of the form is used as a shift summary of the totals of all the time sheets.

f) Intermittent Care (Form E)

The Intermittent Care Form is to be completed by the unit supervisor and personnel from the Physiotherapy, Occupational and Recreational Therapy Departments. The form is used to record rehabilitation and nursing care that is provided to the patients on a regular basis on days other than the study days (i.e., Monday, Tuesday, Wednesday, Thursday). The data supervisor is responsible for circualating the form to each of the departments.

g) Unit Environment (Form F)

This form is completed by the Data Supervisor through an interview with the Unit Supervisor following the three day data collection period. The purpose of the interview is to identify any unusual occurences on the unit that may affect "the normalcy" of the data obtained.

h) Facility Information (Form G)

This form is to be completed by the Data Supervisor in consultation with the facility administrator. Information concerning the facility's layout, organization, programming and staffing are included to provide a background to patient and staff information obtained in the study.

i) Shift Checklist (Form H)

This form is to be completed by the classifiers for each shift of the three-day study. It is designed to ensure that all staff working with patients on the study unit receive and complete the appropriate data forms and that no data is missed or lost.

j) Debriefing (Form I)

At the end of the data collection period, on each unit, the data supervisor conducts a debriefing session with each of the classifiers in relation to the PRF assessment and records the information on this form. An estimation of the availability, completeness, and accuracy of the patient information and the source of the information is included.

3. Definitions

Unit

For the purpose of the provider study, a unit will be defined as a separate patient care area or ward of approximately 20 or 30 patients supervised by one nurse and generally having distinct staff.

II DATA COLLECTION PROCESS

1.1 Outline of Data Collection Process

a) Resource Use Data

The data collection process takes one week to complete and will occur on one or two units at a time until the entire facility has been included. The Data Supervisor assigned to the facility will conduct a number of training sessions on the Monday and Tuesday of the study week. The facility will be responsible for arranging the sessions, ensuring that all nursing and rehabilitation staff attending patients on the unit are scheduled and do attend.

Staff will complete their time forms for three days, all shifts, beginning at 11 p.m. on the Tuesday night and continuing through to 11 p.m. Friday night. Classifiers from the study team will be responsible for ensuring that all staff receive the appropriate forms at the beginning of each shift and that all forms are completed and returned at the end of the shift.

Study Team members will be available to assist the staff with any difficulties they may have in completing forms during the day and evening shifts and the Data Supervisor can be reached by telephone should problems be encountered during the night shift.

b) Patient Information

Classifiers will be assigned to conduct approximately five PRFs (Patient Review Forms) per day beginning Monday and continuing through to Friday of the study week. Sufficient numbers of classifiers have been assigned so that PRFs for all patients in the facility will be completed during the same time that the resource use data is collected.

A reliability check will be conducted by the Data Supervisor for each classifier during the study period, generally on the Tuesday, Wednesday, or Thursday of the study week.

A debriefing session by the Data Supervisor will also be conducted at the end of the week with each classifier to assess the PRF form, its ease of application and the availability and accuracy of the information obtained.

c) Facility Information

At some point during the study, the Data Supervisor will interview the facility administrator in relation to specific features of the building, programs, equipment, personnel, and staffing that may be significant to this study. Immediately following the three-day data collection period, information will also be collected from the Unit Supervisor relating to any unusual occurrences during the data collection period such as staffing, shortages or changes in patient condition, etc.

1.2 Data Collection Forms

The data collection process entails the completion of a total of 10 forms, that relate to a) Resource Use Information (Forms A, B, C, D, E and H); b) Patient Information (PRF and Form I); and c) Facility Information (Forms F and G).

a) Resource Use Information

1. Individual Patient Care (Form A)
2. Group Activity (Form B)
3. Medication (Form C)
4. Unit Time and Shift Summary (Form D)

Forms A, B, C and D measure resource utilization by patients on the unit and are described in detail in the Facility Manual.

5. Intermittent Patient Care (Form E)

This form is circulated by the data supervisor to the rehabilitation and nursing departments for completion.

Rehabilitation care and specific nursing treatments that are provided on the Monday, Tuesday, Saturday and Sunday of the study week and therefore would not be captured during data collection are to be recorded on the form.

The day of the week the care is provided is to be circled and the staff code representing the person that provides the care is entered. The average number of minutes per session are to be recorded for each activity, using the appropriate activity codes for both direct and indirect care. Direct care refers to time spent directly with the patient while indirect care refers to time spent for a patient but not in his/her presence.

Indicate whether or not the service is provided within (I) or outside (O) the facility and whether or not it is on a contract basis.

6. Shift Checklist (Form H)

This form is prepared by the Data Supervisor for each shift of the three-day data collection period on the unit. Names of unit and rehabilitation staff scheduled to be on duty during the shift are listed.

A classifier is assigned to the start and end of each shift and their names are recorded at the top of the page.

At the beginning of the shift, the assigned classifier checks that no staff changes have been made. If there are changes, the missing staff member's name should be crossed off and the replacement staff member's name recorded in the adjacent column.

The classifier checks that each staff member has attended a training session. (If not, conduct an on-the-spot training session.)

As the appropriate forms are given to the staff member, her name is checked off (* RNs must receive Medication Form C).

The classifier then passes the checklist on to the classifier responsible for the end of shift who then checks off the staff members' names as they hand in their completed forms.

*Note the "time shift ends" column! Don't miss staff who work short shifts.

b) Patient Information

1. Patient Review Form (PRF)

The Patient Review Form (PRF) is used by the classifiers to record the patient information necessary to classify the patient. This is described in detail in the PRF Manual.

2. Debriefing (Form I)

The Data Supervisor uses this form as part of a debriefing session with each classifier at the end of the data collection period for each unit. Responses should consider assessed patients as a group and estimate the accuracy, completeness and availability and source of the PRF information as outlined on the form.

c) Facility Information

1. Unit Environment (Form F)

This form should be completed by the Data Supervisor through an interview with the Unit Supervisor immediately following the three day data collection period.

The form is designed to identify all alterations in normal unit routine as well as changes in staffing and patient condition during the study period.

A description of the information sought in each item is included in the form.

2. Facility Information (Form G)

The Data Supervisor sets up an appointment with the facility administrator providing him with a copy of the information to be discussed.

During the interview details relating to special features or organizational arrangements of the facility that may affect staff care times are noted as outlined on the form.

The Data Supervisor should also record on this form any observations in this regard that she may have made during the study period.

1.3 The Coding System

All forms will be coded with the facility and unit codes in the upper right hand corner of the form. Whenever possible, the forms will be precoded before they are sent to the unit.

Resource use forms A, B, C and E will also have the patient's room number, name, and an assigned patient code number preprinted on them before they are sent to the facility.

The following is the coding system for the facility, units, and patients. (Staff codes and activity codes are included in the Facility Manual.)

Facility	Code
Dickensfield	1
Jubilee	2
Bethany	3
Midnapore	4
Lethbridge	5
Westlock	6
Cardston (Nursing Home)	7
Cardston (Auxiliary Hospital)	8
Didsbury	9

Unit	Code	Unit	Code
Dickensfield		Jubilee	
Main A	01	1st floor	01
Main B	02	2nd floor	02
Main C	03	3rd floor	03
Main D	04		
Second A	05	Bethany	
Second B	06		
Second C	07	2 South	01
Second D	08	2 East and Centre	02
Third A	09	3 South	03
Third B	10	3 East and Centre	04
Third C	11	4th Floor	05
Third D	12	6th Floor	06
		7th Floor	07
Midnapore		8th Floor	08
West Wing	01		
East Wing	02	Westlock	
		N.H. Unit	01
Lethbridge		Aux. Unit	02
2nd Floor	01		
1st Floor	02	Cardston (N.H.)	01
Didsbury	01	Cardston (Aux.)	01

Patient's Code

Patients will be coded with a two digit number (starting at 01) in the order they appear on the patients' list for the unit.

If a patient is discharged after the forms have been printed, cross the name off and put any admissions at the bottom of the patient list. Assign the next code number available to the new patient. (Do not assign the same code as the previous patient - even if they are in the same room and bed.

1.4 Data Supervisor Responsibilities and Activities

1. Responsibilities

    a) Acts as a liaison between the study team, the facility staff, and the patients.

    b) Is responsible for the overall data collection process for her facility, including all staff orientation and training sessions.

    c) Schedules and supervises the work assignment of the classifiers working in the facility.

    d) Conducts one reliability check per week on the Patient Review Form assessment with each classifier under her supervision.

    e) Is responsible for obtaining the "Facility data" through interviews with the facility administrator and the unit supervisors.

    f) Conducts "debriefing" interviews regarding the PRF assessment form with each classifier at the end of each data collection period.

    g) Is responsible for ensuring that at the end of the data collection, all materials are completed and forwarded to one of the two main study offices (in Edmonton - Dr. Giovannetti's office, Room 3-106, Clinical Sciences Bldg., University of Alberta [phone (403) 432-2996], or in Calgary - Debbie Leiber or Kate Brennan, International Hotel, 220 4th Avenue S.W. [phone (403) 265-9600]).

    h) Is responsible for reporting to the nursing or facility administrator any unsafe practices or care involving questionable ethics that she observes or that is reported to her by classifiers.

i) Reports to Dr. Giovannetti at the University of Alberta and communicates with her any concerns, difficulties, or alterations in procedure that might occur.

2. Activities

Prior to Week of Data Collection on Unit

a) Check with facility regarding the orientation schedule and compare the schedule to the staff schedule for the three day study period. (The facility contact person can do this for you.) Double check that all staff are booked into an orientation and that there is a room with an overhead transparency machine available.

b) Make sure the patient lists are correct (no admissions, discharges, deaths, transfers) and that forms are being printed up in sufficient numbers for the unit.

c) Prepare shift checklists for each shift of the study period using the unit's staffing schedule.

d) Prepare PRF assignments for the Classifiers for the week.

e) Discuss and finalize assignments of Classifiers to designated supervision times making sure that all shifts both full and partial (at the beginning and the end) are covered by a member of the study team.

Monday of Data Collection Week

a) Give Facility Form G to the Administrator and set up an appointment for an interview sometime during the study period.

b) Set up an appointment with the Unit Supervisor for Friday afternoon to complete Unit Environment (Form F).

c) Conduct facility training sessions as scheduled, making sure that all staff attend at least once. (A roll call at each orientation is necessary.)

d) Make arrangements with the rehabilitation and other staff who may not be on the unit at the beginning of the shift to receive their form and to hand their forms in at the end of their duty time. This can be done best during the facility training session and suited to each facility's situation.

e) Go over the PRF assignments and the supervision schedule with the classifiers.

f) Complete debriefing sessions with classifiers for previous week's PRFs.

Tuesday of Study Week

a) Continue facility training.

b) Do a last check that the patient list is correct and that the appropriate numbers of forms are available. There may have been discharges or admissions since the list was printed.

c) Begin reliability checks with Classifiers.

Wednesday of Study Week

a) Check that data forms are handed in and complete from the Tuesday night shift.

b) Start preparation of the next unit.

c) Continue reliability checks.

Thursday of Study Week

a) Again, check that the data forms have been handed in and are complete from the previous day.

b) Continue preparation of next unit.

c) Make sure the interview with administrator regarding the Facility Form G is completed.

Friday of the Study Week

a) Check the data forms from the 3 study days.

b) Interview the Unit Supervisor to complete the Unit Environment (Form F).

c) Make sure data is complete and correct to send to the Head Office. (This can be done either Saturday morning or the following Monday morning.)

d) Begin debriefing sessions with classifiers.

1.5 Classifier Responsibilities and Activities

1. Responsibilities

a) Is responsible for completion of assigned Patient Review Form assessments on the study unit.

b) Conducts one reliability check of the PRF assessment with the data supervisor each week.

c) Supervises and assists facility staff in the completion of their time forms according to the supervision assignment provided by the Data Supervisor.

d) Is responsible for seeing that all data for her assigned shift is complete, totalled, and attached to the shift check list and placed in the Data Supervisor's box at the end of the shift.

e) When necessary conducts "on the spot" training of unit staff in the completion of their forms.

f) Is responsible for reporting to the Data Supervisor any unsafe practices or care involving questionable ethics that she observes.

g) Reports to the Data Supervisor in the facility.

2. Activities

Monday of Study Week

1) Go over your PRF assignment and staff supervision schedule with the Data Supervisor.

2) Make sure you have a shift checklist for each of your assigned supervision times.

3) Begin PRFs.

Tuesday of Study Week

1) Complete PRFs and reliability checks with Data Supervisor.

Tuesday night, Wednesday, Thursay and Friday of Study Week

(At beginning of shift):

a) Make sure the names of the staff on duty and their hours are recorded on the shift checklist. Check to see if there is anyone off sick and that the replacement has received training. If necessary, conduct one-to-one instruction of any staff member who has not attended a training session.

b) Make sure all staff on duty:

(1) have had the training;
(2) have the preprinted forms; and
(3) that RN's have the medication forms.

c) At the end of the report, remind the staff of what they are to do with the forms. Start them off by writing down their staff code, etc. and get them to write in the report in the appropriate spot in pencil. Provide yellow hi-lite pencils, clipboards, pencils to those who wish them.

d) Tell them you will be checking with each of them in 30 minutes to 1 hour to see how they are making out and not to hesitate to ask if they have any questions before then.

e) Tell them where you will be if they need you and that you will be checking with them periodically throughout their shift.

f) Tell them which member of the study team will be there to collect the forms at the end of the shift and that it is crucial that they hand in their forms personally. Study Team members will help them with their totals if they wish.

g) Give forms to rehabilitation staff in the facility who are listed on the shift checklist.

h) Make sure you hand your Shift Checklist to the Study Team member who will be collecting the forms at the end of the shift.

End of Shift

a) Refer to the Shift Checklist that has been made up at the beginning of the shift.

b) Make sure you don't miss people leaving prior to the regular end-of-shift time (e.g., those on a 4-hour rotation).

c) Collect forms from each staff member including those off the unit, such as O.T., P.T., R.T., checking the data forms carefully for errors and going over the totals and especially the shift summaries with each person.

d) Check off the names on the list as the forms are handed in. Staple the forms to the Shift Checklist and put them in the Data Supervisor's box.

1.6 Ethical Considerations

While the care provided to clients will not be directly observed, both supervisors and classifiers by their presnce on the unit will have the opportunity to witness direct patient care activities. In the unlikely event that unsafe practices or care involving questionable ethics are observed, the following procedure has been developed:

a) Supervisors will report such incidents directly to the nursing administrator or chief officer in charge of the facility at the time of the observed or suspected practice.

b) Classifiers will report such incidents directly to the Data Supervisor assigned to the study site, who in turn will report the incident to the nursing administrator or chief officer in charge.

c) Supervisors and classifiers will not interfere with the delivery of care unless the client's safety is at immediate risk.

III FACILITY ORIENTATION SESSIONS (to be used as a guideline by data supervisors in conducting staff training sessions)

1.1 GOALS OF TRAINING SESSION

Patient Classifiers who are part of the study team will be collecting patient assessment information on approximately 1000 long-term care patients in a number of locations in Alberta. At the same time, all staff working on the patient care units involved in the study will be recording the time they spend delivering care to these same patients. The total staff time will then be compared to the patient's category or assessed level of care. From this, we will be able to evaluate the patient classification system and ensure that it truly reflects the amount of staff resources required for different types of patients.

It is extremely important that _all_ staff providing direct care on the unit be properly trained prior to the study period and that they accurately record the time they spend with patients.

The goals of the training session for the facility staff are:

1. To familiarize you with the patient classification project (provider study in particular); and
2. To give you instruction in the completion of the time sheets and an opportunity to practice them.

1.2 INTRODUCTION TO THE PATIENT CLASSIFICATION TOOL DEVELOPMENT PROJECT

WHAT IS A PATIENT CLASSIFICATION TOOL?

A simple method of grouping nursing home and auxiliary hospital patients into categories that will reflect the differing amounts of care required. For example, a type I patient might be a patient who is relatively independent and thus requires very little care, while a type IV patient might be very dependent, thereby requiring a great deal of care.

WHAT IS THE LONG TERM CARE PATIENT CLASSIFICATION TOOL LIKE?

Primarily based on the patient's level of functioning in the activities and behaviours of daily living.

HOW WILL IT BE USED AFTERWARDS?

As part of a funding formula for distribution of existing funds for nursing homes and auxiliary hospitals.
Voluntarily for staffing purposes, that is, to assign staff to a unit.
Possibly as a basis for policy and program decisions.

1.3 INTRODUCTION TO THE PROVIDER STUDY

WHAT IS THE PROVIDER STUDY?

The provider study is designed to test out the Long-Term Care Patient Classification Tool that has been developed by a team of consultants.

HOW WILL IT BE DONE?

Two types of information (patient characteristics and staff time) will be collected at the same time for 1000 patients in Alberta (2 facilities in Edmonton, 2 in Calgary, 1 in Lethbridge, 2 in Cardston, 1 in Disbury, and 1 in Westlock).

WHO WILL DO IT?

a) Patient Characteristics. This information, obtained primarily from the patients' records, will be used to classify the patient and will be collected by trained classifiers hired as part of the study.

b) Staff Time

All staff providing direct care to the patients on the unit during the study will record their time on four forms: one to record time spent with individual patients, one to record time spent with groups of patients, one for RNs to record the time spent in giving medication and one to record administrative and personal time, and to provide a summary for the shift.

WHEN WILL THIS BE DONE?

Your unit will be involved in the study on these dates:
____
starting at 11:00 p.m. on
______________________________________.

Proceed to the general and specific instructions for completion of forms using the Facility Manual as a guide. Each staff member should have a copy to refer to.

MANY THANKS AND GOOD LUCK!

FACILITY MANUAL

INSTRUCTIONS FOR USE OF THE FORMS

September, 1986

PATIENT CLASSIFICATION TOOL DEVELOPMENT PROJECT

PROVIDER ACTIVITY STUDY

Prepared for Study Team by

P. Giovannetti
Faculty of Nursing
University of Alberta

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II General Description of Forms

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- d) Unit Time and Shift Summary (Form D)

III Study Codes

- 1.1 Staff Codes
- 1.2 Activity Codes

APPENDIX

I GENERAL INSTRUCTIONS FOR COMPLETING THE FORMS

WHO FILLS OUT THESE FORMS?

All unit nursing and rehabilitation staff who give direct "hands on" care to patients.

WHEN DO I DO IT?

The forms with the patients' names printed on them will be given to you at the beginning of your shift on the days the study is being conducted on your unit. It is crucial that all staff attending patients receive forms on these days so please contact a study team member or your unit supervisor immediately if you are missed.

HOW DO I FILL THEM IN?

1. Find your staff code on the list provided and fill it in on the top of each form along with your initials and the date. [Codes for staff and activities are outlined in Section III of this manual.]

2. Find your patients names and hi-lite or underline them. Put the forms in your pocket and go about your work.

3. Record each time you do something with or for a patient. If you wait and try to do it later you won't be able to remember accurately. Take note of the time you start and finish and jot it down quickly. It will take you less time in the long run if you do it as you go along.

WHAT DO I DO WITH THEM WHEN I AM DONE?

At the end of your shift, total all forms and hand them personally to the study member on your unit (one will be assigned to each shift change). She will help you with the totalling procedure if you wish.

WHAT IF I NEED HELP?

There will be a study team member present at the change of shift to provide you with the forms and to assist you with your initial entries. She will check with you periodically thereafter to see if you are having any problems. Study team members will be available on the unit during the day and evening shifts and at all shift changes to help you in any way possible. If there are any problems during the night shift, the Data Supervisor can be contacted by phone.

HOW LONG WILL IT TAKE?

Our experience in trying these forms in other long term care facilities tells us that it will take a total of approximately 20 minutes to complete all the forms for one eight-hour shift.

II GENERAL DESCRIPTION OF FORMS

(Examples of completed forms are included in the appendix of this manual)

a) Individual Patient Care (Form A)

WHAT GOES ON THIS FORM?

Any care that you give that can be directly attributed to an individual patient should be recorded on this form. This includes such things as assisting a patient with eating, dressing, bathing, talking to him, turning and positioning him and so on. Also included are activities that are done indirectly for the patient such as charting, preparing equipment or a dressing tray for him, running errands for him, talking to the family or staff about his welfare or well-being, and so on.

WHAT IF TWO OF US ARE CARING FOR ONE PATIENT AT THE SAME TIME?

Both of you must record the activity and the time on your own form. Remember, our goal is to obtain the total staff time required by each patient and if two people are required then the time of both staff members must be recorded.

WHAT IF I DON'T COMPLETE THE TASK ALL AT ONCE?

If it takes a number of brief encounters to complete an activity such as dressing, eating, grooming, etc., try to total the time involved and record it once on the form. Remember don't include interrupted time or time you are doing something else.

WHEN DOES AN ACTIVITY BEGIN AND END?

An activity begins when you are with a patient and ends when you leave the patient.

WHAT IF I'M DOING MORE THAN ONE THING AT THE SAME TIME?

Often you may be involved in doing two things at once for a patient, such as bathing and talking to the patient, or assisting the patient to dress while teaching him to do it on his own. Do not record the time twice! Record your major activity only, that is your main reason for being there.

HOW DO I FILL IN WHAT I'VE DONE?

What you do is recorded by a code in the highlighted column headed "ACTIVITY CODE" and the time it took (to the nearest minute) is recorded beside it in the "TIME" column. Activity codes and their definitions are included in this manual and a quick reference is printed on the back of each form. As in the example below, if you assisted the patient to eat his breakfast and it took ten minutes you would record as follows: 1-1 for eating in the activity code column and 10 minutes in the first time slot.

If the same activity was repeated later in the shift, that is, you assisted the patient with lunch for 20 minutes, 20 will be placed in the next "TIME" space.

For example:

Room #	Patient's Name	ID #	Act. Code	Time(s) (min.)				Act. Code	Time(s) (min.)			
304-A	Smith, Mr. D.	01	1-1	10	20							

There are four spaces to record times if the activity is repeated during the shift. If it is repeated more than four times you will need to rewrite the code in another column.

WHAT IF A FAMILY MEMBER, VOLUNTEER, OR STUDENT PROVIDES THE CARE FOR MY PATIENT?

You will need to obtain a second form and complete it on the person's behalf, using the appropriate staff code (i.e. 18) at the top instead of your own. Then fill in the activity code and estimated time.

b) Group Activity (Form B)

WHAT GOES ON THIS FORM?

When you do something for more than one patient at a time, it should be recorded on this form.

HOW DO I FILL THIS IN?

1. Place a check (✓) mark beside the names of the patients involved.
2. At the top of the column, record the total # of patients attending the group (including patients from other units).
3. Record the activity code for what you did with the group of patients using the same codes you used in Form A or one of the group codes provided. Again, codes are printed on the back of your form for quick reference.
4. In the "TIME" Box record the total time the group activity took.

For example, you assist four patients in a room to eat spending about the same amount of time with each.

			Total # patients in group 4 Act. Code 1-1	Time 30	Total # patients in group ☐ Act. Code ☐ Time ☐
Room #	Patient's Name	I.D. #	Patients attending		Patients attending
304-A	Smith, Mr. D.	01	✓	1/2	
304-B	Jones, Mr. R.	02	✓		
304-C	Rogers, Mr. M	03	✓		
304-D	Ho, Mr. J.	04	✓		

WHAT IF THE PATIENT LEAVES THE GROUP EARLY?

Record the fraction of time the patient has attended beside his check mark. For example, if Mr. Smith left half-way through write (1/2) beside his check mark.

WHAT IF THE GROUP IS FOCUSING ON MORE THAN ONE ACTIVITY?

Record the main focus of the group only.

c) Medications (Form C) (for RNs only)

WHAT GOES ON THIS FORM?

The time for checking, preparation, administration and charting of prescribed medication by any route and of any type (including alcohol).

HOW DO I FILL IT IN?

The form has two sections.

Section I - Routine Medication Round

1. A check is placed beside the name of each patient receiving medications during a "round" or "pass".
2. The time required to prepare and/or check medications for the round is recorded in the appropriate box at the bottom of the column.
3. The time taken to administer and chart the medication is also recorded at the bottom in the appropriate boxes.
4. The total time for the entire pass (preparing and checking, administering and charting) is recorded in the "Total Time" Box.
5. If a patient required an unusually long time to administer his/her medications, that is, much longer than other patients on the round, this "extra time" should be recorded in the extra time column beside his name.

Section II - Other Medication Administration

Medications that are administered to individual patients that are not given during the medication round are recorded in this section. This would include such items as pain medication, insulin injections, PRN medications or medications that are ordered to be administered at times other than routine medication round times.

d) Unit Time and Shift Summary (Form D)

WHAT GOES ON THIS FORM?

1. Any time that is spent on activities not related to specific patients is recorded here. For example, staff meetings, housekeeping chores, equipment checks, administrative work, meal breaks, time on other units and so on. Specific codes for these unit activities are provided and are printed at the bottom of the form.
2. Also on this form is a section to record and add up the times from all other forms in order to obtain a shift summary. The totals from all forms should come to within 15 minutes of your time on duty.

WHAT IF MY TOTAL TIME DOESN'T ADD UP TO MY TIME ON DUTY?

1. Check your totals on all forms.
2. Go over the forms carefully to see if you have missed recording any time spent with or for a patient. This is the most important part of the study.
3. Then reconstruct your time and see if you have forgotten to record some unit or personal time.
4. Check with a study team member for help.

III STUDY CODES

1.1 Staff Codes

Each care provider has been asigned a numeric code to be used when filling out forms A, B, C, D and E. This code is entered in the upper left-hand corner of the forms. RNs supervising students, volunteers or family will complete additional copies of Form A to record the activities of the people they are supervising or whom they observe caring for patients (example: if a family member bathes a patient, ambulates or visits a patient this will be recorded on a Form A sheet using the staff code ( ).

01	Registered Nurse, Certified Graduate Nurse
02	Registered Psychiatric Nurse
03	Registered Nursing Assistant, Orderly (registered)
04	Nursing Attendant, Orderly, Unit Clerk
05	Service Aide
06	Dietitian
07	Dietary Aide, Dietary Attendant, Dietary Assistant
08	Recreational Therapist
09	Recreational Therapy Aide
10	Occupational Therapist
11	Occupational Therapy Aide
12	Physiotherapist
13	Physiotherapist Aide
14	Porter
15	Porter (Recreational)
16	Porter (Occupational)
17	Porter (Physiotherapy)
18	Family, Volunteer, Student
19	Other

1.2 Activity Codes

ADL ASSIST

(for all ADLs, assistance includes setting up, encouragement, instruction, and supervision of the activity)

Codes	Definitions
1-1	Eating - includes preparation of patient, e.g., raising head of bed, cutting and arranging food, making patient comfortable. Includes assistance with main meals, snacks or liquids. (Tube feeding will be coded under Therapeutic Interventions.)
1-2	Dressing/Grooming - includes assisting or supervising the process of getting appropriate clothes on and off. Also includes all grooming activities, e.g., shaving, brushing teeth, combing hair, cutting and cleaning nails, etc.
1-3	Toileting - Includes giving of bedpan, urinal, taking to toilet, washing hands, taking back to bed or chair, and making patient comfortable.
1-4	Bathing - Includes bed bath, tub bath, shower, shampooing. Activity includes getting out of bed, taking to tub or shower and taking back to room.
1-5	Ambulating/Transferring - Includes time spent assisting or supervising patient to move, e.g., transferring to chair and back (other than those transfers involved with toileting and bathing); walking (with or without devices); wheeling chair; also includes active exercise given by nursing staff when this is the only activity involved.
1-6	Transporting - accompanying dependent patient to another part of facility or outside the facility.

CHRONIC CARE

Codes	Definitions
2-1	Incontinence Care - Changing clothes, bed linens, etc. as a result of bowel and/or bladder incontinence. Includes cleansing of patient and any necessary cleaning up of room or bathroom.
2-2	Bowel Care - Includes administration of suppository for bowel irregularity, enema, fecal disimpaction, ostomy/colostomy care.
2-3	Catheter Care - includes routine catheter care (cleansing, bag or bottle change, etc.). Also includes application of condom drainage.
2-4	Turning/Positioning - Turning and positioning patient in bed, chair, wheelchair, etc. Includes skin care, massage, back rub, positioning of pillows, sheepskins, and passive exercise.

THERAPEUTIC INTERVENTION

Codes	Definitions
3-1	Wound Care - All sterile dressings, wound irrigations, bandaging, tracheotomy care, stump care, decubitus care. (DO NOT include preparing dressing trays and cleaning up of equipment - this is 6-2.)
3-2	Rehabilitation Therapy - Rehabilitation activities such as range-of-motion, chest percussion, instructing in use of prosthesis or aid device, gait training, transfer training, hobbies and handicrafts conducted with the individual patient.
3-3	Teaching - this involves time spent instructing or teaching the patient (other than that related to another activity), e.g. diabetic teaching.
3-4	Other Therapeutic Interventions - all therapeutic interventions not included in the other categories, e.g. catheter change/catheterization, bladder irrigation, compresses/soaks, heat lamp/heating pad/hot water bottle, ice bag application, sitz bath, special skin care, collecting specimens, TPR, B/P, weighing patient, vaginal douche, oxygen therapy, IV therapy, intake-output measurement, foot care, tube feeding.

INTERACTIONS

Codes	Definitions
4-1	Converse/Observe - This includes time spent talking, counselling, observing or assessing the patient. May also include time spent sitting with patient for comfort (with or without conversation).
4-2	Behavior Management - Verbal or physical interventions to prevent injury to the patient or others. Redirecting, supervising or restraining the patient. Includes such activities as reality orientation, behavior modification attempts, checking for safety of patient's immediately environment (e.g. supervising smoking).
5-3	Family/Visitor - Time spent in discussions with the patient's family and/or visitors, whether formal, informal or by telephone.
5-4	Staff - includes any formal/informal discussions with other facility staff or outside professionals (i.,e., doctors, social workers, etc.) relating to this patient. Patient conferences and or team conferences without the patient present would be included in this code (with the patient present would be coded as 4-1).
5-5	Other Communications - Discussions directly relating to the patient with others (e.g., calling for patient hair appointments).

INDIRECT CARE

Codes	Definitions
6-1	Paperwork - paperwork, on behalf of the patient, e.g., chart, kardex, requisitions, reports, care plans, flow charts, requests for consultation, etc.
6-2	Preparing equipment and medications - Time spent in preparation of dressing trays, irrigation trays, medications, etc. for an individual patient as well as the time spent cleaning up equipment afterwards. Also include time spent testing specimens (e.g., urine testing). For the RN, pouring medications for rounds is recorded on the Medication (Form C).
6-3	Errands - running an errand for or on behalf of a patient, e.g., going to pharmacy for a medication for a patient.
6-4	Bed change/Room care - time spent in routine bed making and linen change for an individual patient (not due to incontinence). Also includes time spent in general tidying up of the patients' unit.
6-5	Miscellaneous - to record miscellaneous activities, that is, anything done for a patient indirectly which has not yet been recorded elsewhere on the form. Includes looking for a patient.

GROUP ACTIVITIES

Codes	Definitions
7-1	Social Programs - Church, entertainment groups, sing-songs, pet programs, cuddle programs, and other group activities whose purpose is socialization.
7-2	Hobbies/Crafts - Woodworking, ceramics, weaving, knitting, painting, etc.
7-3	Exercise/Dance - Groups focusing on exercise and movement, including games such as bowling, ball throwing and dancing.
7-4	Doctor/Nurse Rounds - Accompanying a doctor/consultant on rounds to see a number of patients in a short period of time. This code can also be used by a unit supervisor, team leader, or night nurse for patient rounds that consist of brief assessments or "checks" of a number of patients. (If individual patient contact is extensive during a round, the activity should be coded on the Individual Patient Care Form A.)
7-5	Therapeutic Group - Group activities that focus on a particular therapeutic purpose such as psychotherapy, bereavement support. (Rehabilitation therapy should be coded as 3-2.)
7-6	Other Group Activity - Group activity that is not included in any of the group or individual patient care codes.

UNIT/PERSONAL TIME

Codes	Definitions
8-1	Unit activities - Time spent in meetings or discussions not directly related to an individual patient, e.g. report, staff meetings, telephone or informal discussions with other staff, inservice training, committee meetings. Also includes administrative paperwork such as scheduling, staff assignments, performance evaluations, ordering and receiving medications, and counting conrol drugs, etc. Routine ward activities such as setting up and passing nourishments.
8-2	Housekeeping - Time spent in housekeeping and maintenance activities, e.g., washing medication cups, washing clothes, repairing equipment, mopping up spills, etc.
8-3	Personal Time - personal time such as meal breaks, coffee breaks, etc.
8-4	Time spent on other units.

MANY THANKS AND GOOD LUCK!

APPENDIX

Form A	Individual Patient Care (blue)
Form B	Group Activity (yellow)
Form C	Medication (green)
Form D	Unit Time and Shift Summary (pink)

STAFF CODE: 01

STAFF INITIALS: JB

SHIFT: DAYS ✓ EVENINGS ____ NIGHT ____

OTHER (Specify) ________

INDIVIDUAL PATIENT CARE
(FORM A)

DATE: 16 (Day) 09 (Month)

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: 01 UNIT CODE: 08
FOR STUDY USE ONLY

Room #	Patient's Name	I.D. #	Act. Code	Time(s) (mins.)				Act. Code	Time(s) (mins.)				Act. Code	Time(s) (mins.)				Act. Code	Time(s) (mins.)				Act. Code	Time(s) (mins.)				Act. Code	Time(s) (mins.)				Total Time (mins.)
301	WIGGINS, WM.	01	3-4	3				6-1	2				3-4	5																			10
302	COMEAU, IDA	02	4-3	5	5			4-5	5				6-2	15																			30
303	WALLEW, ED	03	4-1	5				2-4	2																								7
304	BREDO, JANE	04	1-3	5				4-2	5	3	2		4-2	3																			18
305	PATICK, WM.	05																															
306	SKOU, ELSA	06																															
308	HAMILTON, JOHN	07	3-4	5				6-1	15				6-5	5																			25
309	TRAPP, HENRY	08	4-2	5				6-2	5																								10
310	BAKER, ED	09																															
311	SMITH, JILL	10	4-2	2	2																												4
312	JONES, ED	11																															
313	JAHN, JUNE	12	4-1	5																													5
314	CAPUZZI, CELIA	13	4-3	2																													2
315	WILL, SUSAN	14	4-2	5																													5
316	GIFFEN, ELSIE	15	4-1	2																													2
317	BRENNAN, PAT	16	4-1	5	5			6-2	3	3	3		6-2	3	3																		25
Column Totals			▨	49	12			▨	37	6	5		▨	31	3			▨					▨					▨					(1) 143

ACTIVITY CODES

ADL ASSIST

1-1 Eating
1-2 Dressing/Grooming
1-3 Toileting
1-4 Bathing
1-5 Ambulating/Transferring
1-6 Transporting

CHRONIC CARE

2-1 Incontinence Care
2-2 Bowel Care
2-3 Catheter Care
2-4 Turning/Positioning

THERAPEUTIC INTERVENTIONS

3-1 Wound Care
3-2 Rehab Therapy
3-3 Teaching
3-4 Other Therapeutic Interventions

INTERACTIONS

4-1 Converse/Observe
4-2 Behavior Management
5-3 Family/Visitor Communication
5-4 Staff Communications
5-5 Other Communications

INDIRECT CARE

6-1 Paperwork
6-2 Preparing Equipment, Meds.
6-3 Errand
6-4 Bed Change/Room Care
6-5 Miscellaneous

GROUP ACTIVITY
(FORM B)

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: 01 UNIT CODE: 08
FOR STUDY USE ONLY

STAFF CODE: 01

STAFF INITIALS: JB

SHIFT: DAYS ✓ EVENINGS ____ NIGHT ____
OTHER (Specify) ____________

DATE: 16 (Day) 09 (Month)

Room #	Patient's Name	I.D. #	Total in group 12 Act.code 7-4 Time 30 √Pts. attending	Total in group 6 Act.code 6-1 Time 10 √Pts. attending	Total in group Act.code Time √Pts. attending	Total in group Act.code Time √Pts. attending	Total in group Act.code Time √Pts. attending	Total in group Act.code Time √Pts. attending
301	WIGGINS, WM.	01	✓	✓				
302	COMEAU, IDA	02						
303	WALLEN, ED	03	✓					
304	BREDO, JANE	04	✓					
305	PATICK, WM.	05	✓	✓				
306	SKOU, ELSA	06		✓				
308	HAMILTON, JOHN	07	✓	✓				
309	TRAPP, HENRY	08	✓	✓				
310	BAKER, ED	09	✓	✓				
311	SMITH, JILL	10						
312	JONES, ED	11	✓					
313	JAHN, JUNE	12	✓					
314	CAPUZZI, CELIA	13	✓					
315	WILL, SUSAN	14						
316	GIFFEN, ELSIE	15	✓					
317	BRENNAN, PAT	16	✓					

Total Time From Boxes
(1) 40 (mins.)

ACTIVITY CODES

ADL ASSIST

1-1 Eating
1-2 Dressing/Grooming
1-3 Toileting
1-4 Bathing
1-5 Ambulating/Transferring
1-6 Transporting

CHRONIC CARE

2-1 Incontinence Care
2-2 Bowel Care
2-3 Catheter Care
2-4 Turning/Positioning

THERAPEUTIC INTERVENTIONS

3-1 Wound Care
3-2 Rehab Therapy
3-3 Teaching
3-4 Other Therapeutic Interventions

INTERACTIONS

4-1 Converse/Observe
4-2 Behavior Management
5-3 Family/Visitor Communication
5-4 Staff Communications
5-5 Other Communications

INDIRECT CARE

6-1 Paperwork
6-2 Preparing Equipment, Meds.
6-3 Errand
6-4 Bed Change/Room Care
6-5 Miscellaneous

GROUP ACTIVITIES CODES

7-1 Social Programs
7-2 Hobbies/Crafts
7-3 Exercises
7-4 Doctor/Nurse Rounds
7-5 Therapeutic Groups
7-6 Other Groups

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY

STAFF CODE: 01
STAFF INITIALS: JB

SHIFT: DAYS ✓ EVENINGS ____ NIGHT ____
OTHER (Specify) ____________

MEDICATION
(FORM C)

DATE: 16 (Day) 09 (Month)

FACILITY CODE: 01 UNIT CODE: 08
FOR STUDY USE ONLY

Room #	Patient's Name	I.D. #	Check	First Pass Extra Time (mins.)	Check	Second Pass Extra Time (mins.)	Check	Third Pass Extra Time (mins.)	Check	Fourth Pass Extra Time (mins.)	PRN MEDICATIONS, OTHER MEDICATIONS GIVEN AT NON-ROUTINE TIMES (MINUTES) Time	Time	Time	Time	Time	Time	Time	Time for Other Med. Admin.
301	WIGGINS, WM.	01			✓													
302	COMEAU, IDA	02			✓													
303	WALLEN, ED	03	✓		✓		✓											
304	BREDO, JANE	04			✓	10	✓											
305	PATRICK, WM.	05			✓		✓		✓		2	3	3					8
306	SKOU, ELSA	06																
308	GIFFIN, ELSIE	07			✓													
309	HAMILTON, JOHN	08	✓		✓		✓											
310	TRAPP, HENRY	09			✓		✓	5	✓		3	3	3	3				12
311	BAKER, ED	10	✓		✓		✓		✓									
312	SMITH, JILL	11			✓		✓		✓	5								
313	JONES, ED	12	✓		✓													
314	JAHN, JUNE	13			✓													
315	CAPUZZI, CELIA	14	✓		✓		✓		✓		2							2
316	WILL, SUSAN	15	✓		✓		✓											
317	BRENNAN, PAT	16																

	First Pass	Second Pass	Third Pass	Fourth Pass
Preparation/Checking Time (mins.)	3	10	10	5
Administration Time (mins.)	10	35	25	15
Charting Time (mins.)	5	10	5	5
Total Round Time (incl. prep., admin., chart)	#1 18	#2 55	#3 40	#4 25

Total Time for Other Med. Admin. #5 22

Total (1 + 2 + 3 + 4 + 5) (6) 160

UNIT TIME AND SHIFT SUMMARY
(FORM D)

STAFF CODE: 01

STAFF INITIALS: JB

SHIFT: DAYS ✓ EVEN. ___ NIGHT ___

OTHER (Specify) ___

DATE: 16 (Day) 09 (Month)

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: 01 UNIT CODE: 08
FOR STUDY USE ONLY

Unit/Personal Time Code (see below)	Time (minutes)
8-1	30
8-1	10
8-1	10
8-2	5
8-3	30
8-1	20
8-1	10
8-1	30
TOTAL	(1) 145

SHIFT SUMMARY

Hours on Duty = 8 x 60 = 480 minutes $\boxed{I}$

End of Shift Totals:

From: Individual Patient Care (Form A)	143	(Box (1), Form A)
From: Group Activity (Form B)	40	(Box (1), Form B)
From: Medication (Form C)	160	(Box (6), Form C)
From: Unit Time and Shift Summary (Form D)	145	(Box (1), Form D)
TOTAL (minutes)	488	$\boxed{II}$

* Total $\boxed{I}$ must be equal to, or within 15 minutes of total $\boxed{II}$

** N.B. HAND ALL FORMS IN PERSONALLY TO STUDY TEAM MEMBERS

UNIT/PERSONAL TIME CODES

8-1	Unit Activities	8-3	Personal
8-2	Housekeeping	8-4	Other Units

Department:

O.T. ______
P.T. ______
R.T. ______
Nursing ______

INTERMITTENT PATIENT CARE
(FORM E)

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: ____ UNIT CODE: ___
FOR STUDY USE ONLY

Patient Name	I.D.#	Days	Staff Code	Direct Care		Indirect Care		IN/OUT (I/O)	Contract ( )
				Act. Code	Time	Act. Code	Time		
		M T S S							
		M T S S							
		M T S S							
		M T S S							
		M T S S							
		M T S S							
		M T S S							
		M T S S							
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		M T S S							
		M T S S							
		M T S S							
		M T S S							
		M T S S							

Date: _____ _______
(day) (month)

Completed by: ______

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY

FACILITY CODE: ____ UNIT CODE: ____
FOR STUDY USE ONLY

UNIT ENVIRONMENT
(FORM F)

1. Admissions during study period: (Wed., Thurs., Fri.) Include transfers from other parts of the facility.

		Admission	
Patient Name	I.D.	Day	Time

2. Discharges during study period: (Wed., Thurs., Fri.). Include transfers to another part of facility, deaths, and admission to acute care facility.

		Discharge	
Patient Name	I.D.	Day	Time

3. Patients on Leave-of-Absence (e.g. Day Pass, Overnight Pass, Vacation Leave) during study period: (Wed., Thurs., Fri.). Include patients who are temporarily away during the study period for any reason not covered in another section.

		Away	
Patient Name	I.D.	Day	Time

4. Staffing Patterns during study period: (Wed., Thurs., Fri.)

		UNIT STAFF			
		Normal Staffing	Staffing on Study Day	Adequacy of Staffing* on Study Day	Comments
Day #1 (Wed.)	Days				
	Evenings				
	Nights				
Day #2 (Thurs.)	Days				
	Evenings				
	Nights				
Day #3 (Fri.)	Days				
	Evenings				
	Nights				

* Adequacy of Staffing - Please rate the staffing situation during designated shifts according to the following scale:

Overstaffed by 2 or more = +2
Overstaffed by 1 or more = +1
About right = OK
Understaffed by 1 = -1
Understaffed by 2 or more = -2

If you indicated anything other than "OK", please explain in the Comments section. For example, staff off sick or on vacation, more volunteer/family assistance available, normal staffing is not adequate, unexpected changes in patient condition, etc.

Rehabilitation Staff for the Unit

Study Day	Normal Staffing	Staffing on Study Day
Day #1 (Wed.)	Physical	
	Occupational	
	Recreational	
Day #2 (Thurs.)	Physical	
	Occupational	
	Recreational	
Day #3 (Fri.)	Physical	
	Occupational	
	Recreational	

5. Were there any unusual events that occurred during the study period that may have affected either staff time or patient care times. (e.g. cardiac arrest, fire alarm, students present, etc.)

____

____

____

____

6. Please indicate any unit routines on the study days that may affect staff times (e.g., major doctor's rounds, meeting days, staff inservice days, or family conference days).

Day	Event

7. Please identify any patients whose condition changed significantly during the study period such that it affected the time required by staff.

Patient's Name	Change in Condition	Alteration in Care

8. Please identify any other situation that may alter the care time a patient would normally receive.

Patient's Name	Comment

9. What special programs are operating on the unit, if any (e.g., Alzheimer's unit, Young Physically Handicapped, etc.)?

Program	Description

(b) What special services and/or personnel are involved in the programs?

____

____

____

____

____

(c) Are the programs approved by the Department of Hospitals and Medical Care? (N.B. This question should be asked of the Director of Nursing Services for the facility.) ______________________________

10. What type of meal service is provided on this unit?

- where are the patients served? ______________________________

____

- by what method? (describe exactly) ______________________________

____

- by whom? ______________________________

____

11. (a) What medication system is used on this unit (e.g., unit dose, individualized medication supplied by pharmacy, stock medication, combination)?

____

____

(b) How and when are medications charted on this unit?

- positive or negative charting? __________________________
- as the nurse administers them or immediately following the medication round?

____

____

DATE ______ ______
(day) (month)

Completed by: ____________________

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: ____ UNIT CODE: ____
FOR STUDY USE ONLY

FACILITY INFORMATION
(Form G)

(to be completed by study team in consultation with facility supervisor)

1. Name of facility: ____

Location: ____

Type of facility (check one):

_____ Nursing Home
_____ Auxiliary Hospital
_____ Combination

Date facility opened: ____

2. Dates of data collection at this facility: __________ to __________

3. Layout of facility:

Attach a floor plan (ex: fire plan) of the facility. Identify separate administrative units or wings, and locations of nursing stations, as well as utility, linen, supply rooms, balconies, lounges, program/activity areas, dining room, outdoor area, etc.

Identify also special features, renovations underway, or any other features not identifiable in sketch; for example, presence of therapy room, recreation room, kitchen, garden area, etc.

4. Accommodation:

Total # of beds: __________________
# of nursing units (separate administrative units): __________________
# of ward beds (4 or more beds per room): __________________
# of semi-private rooms (2-3 beds per room): __________________
# of private beds: __________________
# of ward beds with private bathrooms: __________________
# of ward beds sharing bathroom with other room(s): __________________
# of semi-private beds with private bathroom: __________________
# of semi-private beds sharing bathroom with other room(s): __________________
# of private beds with private bathroom: __________________

% occupancy at time of data collection: __________________%

5. Staffing:

6. Do staff typically rotate through shifts or work permanent shifts?

____

7. Do staff typically work on more than one nursing unit?

____

8. How is patient assignment done? ____________________

____

9. Charting:

What is the usual charting routine used for each patient?

____

____

Facility Form Information

Form	? used by facility		Location	Usual frequency of entries
Kardex	Yes	No	________	____________
Patient Chart	Yes	No	________	____________
Medication Record	Yes	No	________	____________
Nursing Progress Notes	Yes	No	________	____________
Daily Flow Sheets	Yes	No	________	____________
Nursing Assessment	Yes	No	________	____________
Discharge Summary	Yes	No	________	____________
Other (specify):				
________________	Yes	No	________	____________
________________	Yes	No	________	____________

10. Is there a rehabilitation program in operation at this facility? Yes ________

No ________

11. Role of volunteers in this facility ____

____

____

____

FOR STUDY TEAM USE ONLY

Sources of information: ____

____

____

Facility contact person: ____

____

Telephone number: ____

PATIENT CLASSIFICATION PROJECT
PROVIDER STUDY
FACILITY CODE: ____ UNIT CODE: ____
FOR STUDY USE ONLY

SHIFT CHECKLIST
(FORM H)

Date: _____ _______
(day) (month)

Shift: Days ________
Evenings _____
Nights ______

Study Team Member Responsible
1) Shift Start: ____________________
2) Shift End: ____________________

Scheduled Unit Staff (* = R.N.)	Write in any Changes on Study Day	Time Shift Ends	Attended Training Session ✓	Forms Given @ Shift Start ✓	Forms Handed in @ End of Shift ✓	Comments
Off Unit Staff						

DEBRIEFING FORM
(Sources and Adequacy of Patient Review Data)

FORM I

Patient Classification Project
Facility Number ____________
Unit Number ____________
Data Collector ____________
Supervisor ____________
Date ____________

Instructions: Data supervisor uses as part of debriefing with each data collector at end of data collection for each unit. Responses should consider assessed patients as a group.

ITEM	Percent of patients for whom recorded information was found:			Degree of confidence in recorded information 1 to 5 (low) (high)	Percent for whom staff interview was required for verification of recorded information	Percent for whom staff interview was sole source of information	Percent for whom "other" source was required to verify recorded/staff information	Percent for whom "other" was sole source of information	Percent for whom information not available	Comments eg. reasons for lack of confidence, "other" sources of information
	Record only	Care Plan only	Both							
Health Status Items										
Medical Diagnosis										
Comatose										
Terminally Ill										
Orientation										
Memory										
Special Programs										
ADL Items										
Eating										
Toileting										
Transferring										
Dressing										
Grooming										
Bathing										
Mobility										
TYPE OF PROGRAM										
Rehab ADL Domain										
Rehab Focus i.e. specific ADL										
BDL Items										
Wandering										
Hoarding/Rummaging										
Aggressive Behav										
Agitated Behavior										
Suspicious Behav										
Indisc Ingestion Foreign Substance										
Inappropriate Sexual Behavior										
Inapprop. Smoking										
Alcohol/Drug Abuse										
Resists Treatment										
Patient acts sad, depress/withdrawn										
Patient demands attention/somatic/psych complaints										
Suicidal Behavior										
Refuses Treatment										
Angry/Hostile Beha										

ITEM	Percent of patients form whom recorded information available in:			Degree of confidence in recorded information 1 to 5 (low) (high)	Percent for whom staff interview required for verification of recorded information	Percent for whom staff interview was sole source of information	Percent for whom "other" source was required to verify recorded/staff information	Percent for whom "other" was sole source of information	Percent for whom information not available	Comments eg. reasons for lack of confidence "other" sources of information
	Record	Care Plan	Both							
Patient acts sad depress/withdrawn										
Patient demands attention somatic/psych complaints										
Potential for injury self/others										
Ineffective Coping										
Other Behav Prob										
Rehab BDL Domain										
BDL Rehab Focus										
Chronic Care Items										
Urinary Incontin/Catheter Care										
Fecal Incontin/Ostomy Care										
Medications										
Monitoring Medications Effects										
Other Monitoring										
Communciation										
THERAPEUTIC INTERVENTIONS/PROGRAMS										
Chest Care										
Oxygen										
Suctioning										
Parenteral Fluids										
Tube Feeding										
Wound Care										
Special Foot Care										
Special Skin Care										
Self-medication										
Pain Therapy										
Splinting										
Seating										
Environ Control Training										
Spec. Assess/Diagnostic Workups										
EXTERNAL DEMAND ITEMS										
Family Participation in Care										

Patient Classification Project
Provider Activity Study
Form J

FORM J
Wage Expenses

To be completed by the Data Collection Supervisors with information obtained from facility administrators. These data will be used to compute resource use weights.

Facility Code ____

Code	Provider Category	Ave. Monthly Base Salary for 1 FTE (paid in Sept.) or	Ave. Hourly Wage (for Sept.)	Fringe Benefit Formula (e.g. % of salary)
01	Registered Nurse, Certified Graduate Nurse			
02	Registered Psychiatric Nurse			
03	Registered Nursing Assistant, Orderly (registered)			
04	Nursing Attendant, Orderly, Unit Clerk			
05	Service Aide			
06	Dietitian			
07	Dietary Aide, Dietary Attendant, Dietary Assistant			
08	Recreational Therapist			
09	Recreational Therapy Aide			
10	Occupational Therapist			
11	Occupational Therapy Aide			
12	Physiotherapist			
13	Physiotherapist Aide			
14	Porter			
15	Porter (Recreational)			
16	Porter (Occupational)			
17	Porter (Physiotherapy)			
18	Family, Volunteer, Student			
19	Other:			

Forms/30
092586ce

Patient Classification Project
Provider Activity Study
Form J-2

Facility Code______

FORM J-2
Wage Expenses

Instruction to Data Supervisors:

If average monthly salaries are not available for groups of providers, please collect data from facility administrators on monthly salaries paid for each individual in the facility who participated in the study, by code, and we will compute the average for the category. Remember to collect fringe benefit data also, preferably by category formula (e.g. % of salary).

Code	Provider Title (names not necessary)	Monthly Base Salary or (1 FTE (for Sept.)	Hourly Wage (for Sept.)	Fringe Benefit Formula
01	RN, Certified Graduate Nurse a. R.N. #1			
	b.			
	c.			
	d.			

Forms/30
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APPENDIX D
METHODOLOGICAL NOTES AND TABLES

- Procedure for Estimating Missing Staff Time from Form F
- Data Collection Schedule (Table 1)
- Reliability Assessment by Data Collector and Facility (Table 2)
- Tables for Indicators Not Included in the Classification System (Tables 3 through 9)
- Computation of Case-Mix: An Example

Procedure for Estimating Missing Staff Time from Form F

Procedure for estimating missing time data for patients who were off the unit during part of the data collection period.

Data from the Unit Environment Form F was handled in the following way:

First, data from the F form was visually inspected, transformed and put on a coding sheet designed to facilitate data entry into the computer. Client names were changed to clients' ID numbers. The actual time away from the unit was changed to total number of hours off the unit. When data was missing regarding the time off the unit, times were estimated using the following guidelines: day of work = 9 hours; day pass = 10 hours; all day = 10 hours, and half day = 4 hours. Patients who were on LOA or hospitalization or unspecified reasons were estimated to be off for 24, 48, or 72 hours depending upon which days had been noted.

Second, time data by type of provider for forms A (PRF), B (Group Activity), and C (Medication) were weighted to give each patient time values which covered the entire 72 hour data collection period. Time data for patients who were not off the units were added across the three days by type of provider. The time for each type of provider was weighted by a value of one. Time data for patients who were off the unit were also added across the three days. The data for this group of patients was weighted by a ratio of total study period time (72 hours) divided by the amount of time the patient spent on the unit during that time period. For example a patient who was off the unit for 60 hours was calculated to have been on the unit for 12 hours (72-60=12). If this patient had received one hour of nurse aide time during that 12 hour period, his total aide time for the 72 hour study was estimated to be 6 hours (72/12 X 1 hr = 6 X 1 hr = 6 hrs).

This method of weighting assumes that the amount of time the staff spent in caring for the patient during the time he was on the unit is the same (hour for hour) as the amount of time he would have received during the time away from the unit had he not left. While this method is probably adequate for most patients it could inflate the amount of time for some, e.g. patients who are being discharged or admitted, patients such as the young handicapped who need heavy AM or PM care but would require minimal daytime care if present in the facility. To compensate for this limitation, the weighted times for patients off the unit for part of the study were compared with the mean time for their category. PRFs were examined for those patients with outlying time data. If the weighted time seemed inappropriate, the patient was omitted from analysis.

Other options for dealing with missing data (in this case time data) were considered and rejected. Those include: 1) omitting all patients with missing data; 2) weighting some times of the day more heavily; and 3) creating individual weights for each patient. The first option would result in loss of approximately 5% of the total sample. In addition, it might systematically omit a certain type of patient, i.e. the young handicapped who goes to work or school during the day. The second option assumes that patient are homogeneous with regard to the time of day when their needs are "heaviest." The over and under estimates with this option would be more extreme than those created by the equal weighting of time. The third option would require a substantial amount of time.

Fifty-four patients were identified as being off the unit for at least part of the 72 hour data collection period. The distribution is bimodal with 10 being off fewer than 5 hours, and 9 being off more than 70 hours. Most of the clients in this latter group were omitted from the analyses.

Instructions for Coding Sheet for Form F
Page 1
(Unit Environment)

Instructions:

Complete one form for each unit environment Form F page 1. List each patient identified as missing for part of the data collection period. For the 3 days, record the total number of hours *off* the unit and the reason for being off the unit. If the patient is off the unit for more than one reason during the study period, code the reason associated with the longest absence.

Code values:

Reasons for Absence

1 = Admission
2 = Discharge
3 = Other (LOA)*

Number of Hours off the Unit

When the patient is off the unit for:

"day of work"	subtract 9	hours off
"day pass"	subtract 10	hours off
"all day"	subtract 10	hours off
"half day"	subtract 4	hours off

* LOA = Leave of Absence

Hours Off Unit Interval	No. of Patients	n = 54
70-74	9	
65-69	0	
60-64	4	
55-59	3	
50-54	0	
45-49	1	
40-44	0	
35-39	3	
30-34	1	
25-29	3	
20-24	5	
15-19	4	
10-14	6	
5-9	5	
0-4	10	

Figure 1 **Number of patients off the unit by length of time.**

Table 1 Data Collection Schedule

Data Supervisor	Week 1 9/22-9/26	Week 2 9/29-10/3	Week 3 10/6-10/10	Week 4 10/14-10/19
J. Buchan	CF # 1 (4 data collectors)	CF # 1 (4 data collectors)	CF # 1 (4 data collectors)	NH # 1 and AH # 3 (5 data collectors)
J. Jahn	NH # 4 (3 data collectors)	NH # 4 (3 data collectors)	NH # 3 (3 data collectors)	NH # 3 (2 data collectors)
K. Brennan	AH # 1 (5 data collectors)	AH # 1 (5 data collectors)	AH # 1 (4 data collectors)	AH # 1 and NH # 7 (3 data collectors)
D. Leiber	NH # 5 (2 data collectors)	NH # 5 (2 data collectors)		
L. Farkas				NH # 6 (2 data collectors)
B. Kerr				NH # 2 and AH # 2 (2 data collectors)

Table 2 Reliability Assessment by Data Collector and Facility

Data Supervisor	Week 1 (Sept. 22-26)	Week 2 (Sept.29-Oct 3)	Week 3 (Oct. 6-10)	Week 4 (Oct. 14-17)
Bev Manderschield	CF # 1	CF # 1	CF # 1	NH # 1 and AH # 3
Sheila McPherson	CF # 1	CF # 1	CF # 1	NH # 1 and AH # 3
Corrine Guenard	CF # 1	CF # 1	CF # 1	NH # 1 and AH # 3
Liz Chomin	CF # 1	CF # 1	CF # 1	NH # 1 and AH # 3
Susan Tanaguchi	NH # 4	NH # 4		NH # 1 and AH # 3
Esther Ulan	NH # 4	NH # 4		NH # 2 and AH # 2
Barbara Kerr		NH # 4		
Jean Hollo	AH # 1	AH # 1	AH # 1	NH # 7 and AH # 1
Florence Chappel	AH # 1	AH # 1	AH # 1	NH # 7 and AH # 1
Nel Hayewood	AH # 1	AH # 1	AH # 1	NH # 6
Eleanor Fergusson	AH # 1	AH # 1	AH # 1	NH # 7 and AH # 1
Trish Philp	AH # 1	AH # 1		NH # 2 and AH # 2
Lu Farkas	NH # 5	NH # 5		
Sandra Daly	NH # 5	NH # 5		NH # 6
Valerie Ferguson			NH # 3	NH # 2 and AH # 2
Phyllis Jones			NH # 3	NH # 3
Peggy Hughes			NH # 3	NH # 3

Table 3 Percentage of Patients in Each Category (ABCAT) with Specific Types of Diagnoses

Categories	Circulatory %	Mental Problems %	Musculoskeletal Disability %	Neurological Dysfunction %
A	55.5	31.7	50.0	24.4
B	50.8	39.2	43.8	40.7
C	43.9	31.7	50.4	49.6
D	45.0	41.1	40.4	45.7
E	51.1	34.3	47.4	46.7
F	33.6	35.2	37.9	64.5
G	34.1	40.0	31.8	56.5
N	553	450	534	598

Note: Percentages are not additive since patients may have more than one diagnosis.

Table 4 Percentage of Patients in Each Category (ABCAT) Exhibiting No Memory Loss or Confusion

Categories	N	No Memory Loss N	%	No Confusion N	%
A	164	104	63.4	129	78.7
B	258	109	42.4	160	62.0
C	122	45	36.9	55	45.1
D	151	53	35.1	69	45.7
E	136	23	17.2	39	28.7
F	326	53	16.4	78	23.9
G	85	10	11.8	12	14.1
TOTAL	1242	397	32.1	542	43.6

Table 5 **Number and Percentage of Patients in ABCAT Categories by Number of Medications Ordered (N = 1244)**

Categories (ABCAT)	Number of Medications 0 % (N)	1-5 % (N)	6-8 % (N)	over 8 % (N)	TOTAL
A	.6 (1)	37.8 (62)	28.7 (47)	32.9 (54)	100.0 (164)
B	.8 (2)	31.8 (82)	28.7 (74)	38.8 (100)	100.1 (258)
C	---	27.6 (34)	35 (43)	37.4 (46)	100.0 (123)
D	---	29.8 (45)	25.2 (38)	45 (68)	100.0 (151)
E	---	28.5 (39)	34.3 (47)	37.2 (51)	100.0 (137)
F	---	26.1 (85)	29.8 (97)	44.2 (144)	100.1 (326)
G	---	24.7 (21)	34.1 (29)	41.2 (35)	100.0 (85)

Table 6 **Mean Nursing Resource Use by Category and Number of Meds Ordered (N = 1238)**

Categories (ABCAT)	N	Number of Medications 0	1-5	6-8	over 8
A	161	8.37	27.34	32.85	33.78
B	256	25.84	37.41	37.94	52.12
C	123	---	52.02	56.71	68.12
D	151	---	61.03	69.98	75.67
E	137	---	90.10	84.50	93.84
F	325	---	96.40	107.45	108.83
G	85	---	116.73	112.92	125.88

Table 7 Percent of Patients (N) in Each Category (ABCAT) by Number of Nursing Treatments (TIPs-RN) Ordered

Categories	Number of TIPs-RN Ordered Per Patient					
	0	1	2	3	4 or more	Total
A	76.9	16.9	5.6	.6		100%
	(123)	(27)	(9)	(1)	—	(160)
B	73.7	21.2	4.3	0.8		100%
	(188)	(54)	(11)	(2)	—	(255)
C	74.6	16.4	4.9	3.3	0.8	100%
	(91)	(20)	(6)	(4)	(1)	(122)
D	64.4	27.5	6.7	1.3		99.9%
	(96)	(41)	(10)	(2)	—	(149)
E	65.9	25.2	7.4	1.5		100%
	(89)	(34)	(10)	(2)	—	(135)
F	55.6	31.1	10.6	1.9	0.9	100.1%
	(179)	(100)	(34)	(6)	(3)	(322)
G	48.8	41.3	8.8	1.3		100.2%
	(39)	(33)	(7)	(1)	—	(80)
N	805	309	87	18	4	1223
(%)	(65.8%)	(25.3%)	(7.1%)	(1.5%)	(.3%)	(100%)

Table 8 Percent of Patients (N) in Each Category (ABCAT) by Number of Rehabilitation Treatments (TIPs-REH) Ordered

Categories	Number of TIPs-REH Ordered Per Patient				
	0	1	2	3	Total
A	158	4	—	—	162
B	244	12	—	—	256
C	112	9	1	1	123
D	132	18	1	—	151
E	132	5	—	—	137
F	263	48	14	1	326
G	72	8	2	—	82
N	1113	104	18	2	1237
(%)	(90.0%)	(8.4%)	(1.5%)	(0.2%)	(100.1%)

Table 9 Number and Percentage of Patients in Each Category (ABCAT) Whose Family Frequently Participated in Care

Categories		Family Frequently Participated in Care	
	N	N	%
A	161	118	73.3
B	257	150	58.4
C	121	76	62.8
D	147	92	62.6
E	135	74	54.8
F	319	170	53.3
G	84	51	60.7
TOTAL	1224	731	59.7

Computation of Case-Mix: An Example Using Sample Data and ABCAT Classification Categories

I. Computation of Sample Case-Mix Measure

Category (ABCAT)	Proportion of Patients (Sample)	X	Category Weight	=	(P X W)
A	.132		30.92		4.0814
B	.207		43.21		8.9445
C	.099		59.68		5.9083
D	.121		69.88		8.4555
E	.110		89.57		9.8527
F	.263		105.12		27.6466
G	.068		119.20		8.1056
	1.00				72.9946

Sample Case-mix Measure = 72.9946

II. Computation of Facility Case-Mix Measure

Category (ABCAT)	Proportion of Patients (Facility X)	X	Category Weight	=	(P X W)
A	.02		30.92		.6184
B	.16		43.21		6.9136
C	.15		59.68		8.9520
D	.10		69.88		6.9880
E	.12		89.57		10.7484
F	.40		105.12		42.0480
G	.04		119.20		4.7680
	1.00				81.0364

Facility X Case-mix Measure = 81.0364

III. Computation of Case-Mix Index for Facility X

Case-Mix Index for Facility X

$$\text{CMI} = \frac{\text{Facility Case-Mix Measure}}{\text{Sample Case-Mix Measure}} \text{ X } 100$$

$$= \frac{81.0364}{72.9946} \text{ X } 100$$

$$= 1.1102 \text{ X } 100$$

$$= 111$$

Facility X has a somewhat heavier patient mix than the sample as a whole since its CMI is greater than 100.

APPENDIX E

- Patient Classification Form (PCF)
- User Manual
- Instructions for Determining Classification Categories

Page 1 of 8

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PATIENT CLASSIFICATION FORM (PCF)

DRAFT

I BACKGROUND DATA

PATIENT A.H.C.I.P. NUMBER	FACILITY CODE NO.	UNIT NUMBER

PATIENT CHART NUMBER	DATE OF CURRENT ADMISSION TO THIS FACILITY			DATE OF BIRTH		
	YEAR	MONTH	DAY	YEAR	MONTH	DAY

SEX ☐
1. Male
2. Female

PATIENT STATUS ☐
0. Resides in facility: chart present.
1. Resides in facility: chart unavailable (e.g. bed being held during temporary treatment in acute care hospital).
2. No longer resides in facility: discharged to community.
3. No longer resides in facility: discharged to another long term care facility.
4. No longer resides in facility: discharged to acute care hospital.
5. Deceased.
6. Other (*Please specify*) ____________________
(For information only: not to be keypunched.)

Complete remainder of form only if Patient Status was coded "0" Resides in facility: chart present.

CURRENT MARITAL STATUS ☐
1. Never married
2. Married
3. Widowed/Divorced/Separated

LANGUAGE
1. Speaks English ☐
   0. No
   1. Yes
2. Understands English ☐
   0. No
   1. Yes
   2. Partial
3. Preferred Language ☐
   1. English
   2. French
   3. Ukrainian
   4. German
   5. Chinese
   6. Other (*Please specify*) ☐☐☐☐☐☐☐☐☐☐☐☐

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II. HEALTH STATUS

A. Current Medical Diagnoses — *List by disease category* **all** *diagnoses that appear in the patient's medical record. Write in the diagnosis(es), the corresponding ICD-9 code(s) and indicate duration. Use space under "Other" (13- 15) if more than two diagnoses per category are listed in the medical record.*

DURATION

Code 1 = Less than 6 months
2 = 6 months or more

	ICD-9 CODE					ICD-9 CODE			
1. Blood Diseases					....				
2. Circulatory Diseases					....				
3. Digestive Disorders					....				
4. Endocrine Disorders					....				
5. Genitourinary Disorders					....				
6. Mental Problems					....				
7. Musculoskeletal Disabilities					....				
8. Neoplasms					....				
9. Neurological Motor Dysfunctioning					....				
10. Pulmonary Diseases					....				
11. Sensory Disorders					....				
12. Skin Diseases					....				
13. Other 1 ______					....				
14. Other 2 ______					....				
15. Other 3 ______					....				

For items B onward, place a checkmark in the boxes in the shaded area to the **left** of each item if information requires verification with facility staff.

☐ **B. Medical Condition**

1. Comatose .... B1 ☐
   - 0 No
   - 1 Yes
2. Terminally Ill .... B2 ☐
   - 0 No
   - 1 Yes

C. Memory and Orientation

☐ 1. Orientation to facility environment .... C1 ☐
   - 0. Has no difficulty in finding way around facility on own.
   - 1. Can find way around his/her unit/ward without assistance but cannot find way to or from other areas of facility without assistance.
   - 2. Knows location of own room but occasionally needs direction in returning to it from other areas on his/her unit/ ward.
   - 3. Cannot locate own room without assistance when on his/her own unit/ward.
   - 8. Not applicable (e.g. patient is bedridden).

☐ 2. Identification and recognition of staff and their roles .... C2 ☐
   - 0. Recognizes regular staff and does not confuse them with others.
   - 1. Occasionally confuses regular staff with others (e.g. family members).
   - 2. Recognizes regular staff but believes they are others (e.g. family member or friend) the majority of the time.
   - 3. Does not recognize staff who routinely care for him/her.
   - 8. Not applicable (e.g. patient is comatose).

☐ 3. Ability to remember instructions *(check with rehabilitation personnel)* .... C3 ☐
   - 0. Can repeat two or more sentences (two-part instruction) after distraction or intervening conversation.
   - 1. Can repeat two or more sentences (two-part instruction) immediately after hearing them.
   - 2. Can repeat simple sentence (one instruction) back after distraction or intervening conversation.
   - 3. Can repeat simple sentence immediately after hearing it.
   - 4. Cannot repeat simple sentence immediately after hearing it.
   - 8. Not applicable (e.g. patient is comatose).

☐ **D. Special Programs** — Patient participates in Hospital and Medical Care approved programs and/or occupies designated beds as follows. *(If patient participates in more than one approved program, use both box D1A and D1B; otherwise use box D1A only.)*

D1A ☐

D1B ☐

1. Mentally dysfunctioning elderly
2. Young physically handicapped
3. Other (*Please specify below*)

8. Does not participate in special approved programs.

III. ACTIVITIES OF DAILY LIVING (ADLs)

☐ A. **Eating** — Process of getting food into stomach, excluding tube feeding and parenteral feeding. .... A ☐
(Code level of functioning for most *of the meal times during the daytime.)*
0. Eats without assistance; may use special devices.
1. Needs assistance with opening cartons, cutting meat, etc., but does not require further assistance.
2. Needs intermittent encouragement with or without physical assistance.
3. Needs constant encouragement with or without physical assistance.
4. Needs complete feeding by another person.
8. Is tube fed.

☐ B. **Toileting** — Process of getting to and from a toilet or commode (or use of other toileting equipment), transferring on and off toilet, cleansing self after elimination and adjusting clothes. .... B ☐
(Code level of functioning during the daytime.*)*
0. Needs no assistance. Is independent with or without equipment.
1. Requires someone to bring equipment, to assist to the bathroom, or may need reminding, but otherwise needs no assistance.
2. Requires intermittent supervision for safety or encouragement, or minor physical assistance (e.g. clothes adjustment or washing hands).
3. Requires one person to provide constant supervision and/or physical assistance with major or all parts of the task or the task will not be completed.
4. Requires two people to provide assistance; may need mechanical aids.
8. Not applicable (patient does not use toilet for either bowel or bladder elimination, i.e. has a catheter and an ostomy or uses incontinence products).

☐ C. **Transferring** — Process of moving between positions (e.g. to/from bed, chair, standing) excluding transfers in/out of bath and on/off toilet. .... C ☐
(Code highest *level of assistance required during 24 hour period. Code a "1" or a "2" in the box labelled* C4 only *if patient receives a score of "4" on transferring; otherwise code only box* C.*)*
0. Needs no assistance. Is independent with or without equipment.
1. Depends on equipment and needs another person to position wheelchair, walker, etc. but otherwise manages transfer alone.
2. Requires intermittent supervision (e.g. verbal cueing, guidance) and/or physical assistance for difficult maneuvers only.
3. Requires one person to provide constant guidance, steadiness and/or physical assistance; patient participates in transfer.
4. Requires two or more people: .... C4 ☐
    1. to provide constant supervision and/or physical support; or
    2. to lift patient physically (with or without mechanical aids).
8. Not applicable (e.g. patient is comatose, bedridden).

☐ D. **Dressing** — The process of getting street clothes on. .... D ☐
(Code level of assistance required to dress for the first time *during the day.)*
0. Dresses without staff assistance; may use special devices.
1. Needs help assembling clothes or equipment.
2. Needs intermittent assistance or supervision.
3. Needs constant supervision to dress self.
4. Needs total assistance.
8. Not applicable (e.g. patient is comatose, bedridden.)

☐ E. **OT Rehabilitation in ADL Domain** — Type of Occupational Therapy (OT) program patient is receiving for problems with any ADLs. .... E ☐
0. Is not on any OT program (but OT rehabilitation programs are available to patients in this facility and patient may get PRN assistance).
1. Receives OT consultation and/or monitoring only.
2. Is on low maintenance OT program.
3. Is on high maintenance OT program.
4. Is on restorative OT program.
8. No appropriate OT rehabilitation programs are available in this facility.

☐ F. **PT Rehabilitation in ADL Domain** — Type of Physical Therapy (PT) program patient is receiving for problems with any ADLs. .... F ☐
0. Is not on any PT program (but PT rehabilitation programs are available to patients in this facility and patient may get PRN assistance).
1. Receives PT consultation and/or monitoring only.
2. Is on low maintenance PT program.
3. Is on high maintenance PT program.
4. Is on restorative PT program.
8. No appropriate PT rehabilitation programs are available in this facility.

IV. BEHAVIOURS OF DAILY LIVING (BDLs)

A. **Examples of behaviour** — *Complete the following code list to describe examples of behaviour that require care. Use the descriptions as a guide when completing the two behavioural classification indicators (potential for injury to self or others and ineffective coping) at the end of the list of examples.*

☐ 1. Wandering .... A1 ☐

- 0. Behaviour not present.
- 1. Wanders, but does not attempt to leave immediate environment; returns to own room without assistance.
- 2. Wanders, does not attempt to leave immediate environment, but unable to locate own room without assistance.
- 3. Wanders, will leave immediate environment if not prevented.

☐ 2. Hoarding, Rummaging .... A2 ☐

- 0. Behaviour not present.
- 1. Hoards food or picks up objects which are lying around, but does not search others' belongings.
- 2. Searches others' belongings looking for food or objects.

☐ 3. Aggressive behaviour .... A3 ☐

- 0. Behaviour not present.
- 1. Verbally or physically aggressive or abusive in predictable situations, e.g. when provoked.
- 2. Occasionally verbally or physically aggressive with no apparent provocation.
- 3. Frequently verbally or physically aggressive without provocation.

☐ 4. Agitated behaviour .... A4 ☐

- 0. Behaviour not present.
- 1. Cries out, paces and/or chatters in response to major changes in routine.
- 2. Cries out, paces and/or chatters in response to minor changes in routine.
- 3. Cries out, paces and/or chatters without stimulus.

☐ 5. Suspicious behaviour .... A5 ☐

- 0. Behaviour not present.
- 1. Occasionally suspicious of unfamiliar people.
- 2. Suspicious of most people but behaviour does not disrupt daily routine.
- 3. Suspicious of most people in environment to the extent that it interferes with daily routines (e.g. eating).

☐ 6. Indiscriminate ingestion of foreign substances .... A6 ☐

- 0. Behaviour not present.
- 1. Occasionally ingests, eats foreign substances.
- 2. Ingests foreign substances/objects daily.

☐ 7. Inappropriate sexual behaviour .... A7 ☐

- 0. Behaviour not present.
- 1. Occasionally exposes self, or makes inappropriate remarks.
- 2. Frequently exposes self or makes inappropriate remarks.
- 3. Occasionally touches others inappropriately.
- 4. Frequently touches others inappropriately.

☐ 8. Inappropriate smoking .... A8 ☐

- 0. Behaviour not present or does not smoke.
- 1. Occasionally leaves lighted cigarettes unattended.
- 2. Frequently leaves lighted cigarettes unattended.

☐ 9. Alcohol and/or drug abuse .... A9 ☐

- 0. Behaviour not present or not a problem.
- 1. Behaviour present but not a problem.
- 2. Occasional problem causing danger to self only.
- 3. Occasional problem causing danger to self and others.
- 4. Frequent behaviour causing danger to self and others.

☐ 10. Resists treatment or refuses care .... A10 ☐

- 0. Behaviour not present.
- 1. Occasionally resists or refuses but can be persuaded to comply.
- 2. Occasionally resists or refuses and misses treatment as a result.
- 3. Frequently resists or refuses but eventually complies.
- 4. Frequently resists or refuses and cannot be persuaded to comply.

☐ 11. Patient acts sad, depressed or withdrawn .... A11 ☐

0. Behaviour not present.
1. Exhibits behaviour but participates in activities without supervision.
2. Exhibits behaviour and needs supervision or encouragement to participate in or complete activities.
3. Exhibits behaviour and refuses to participate or cooperate in activities.

☐ 12. Patient demands attention for somatic or psychological complaints .... A12 ☐

0. Behaviour not present.
1. Intermittently demands attention.
2. Constantly demands attention.

☐ 13. Suicidal behaviour .... A13 ☐

0. Behaviour is not present.
1. Verbalizes ideas of suicide, no prior threats or attempts.
2. Verbalizes ideas of suicide, history of prior threats or attempts.
3. Verbalizes plans for suicide.
4. Has attempted suicide within the past year.

☐ 14. Angry, hostile behaviour .... A14 ☐

0. Behaviour not present.
1. Exhibits anger, hostility in predictable situations.
2. Occasionally exhibits anger, hostility in unpredictable situations.
3. Frequently exhibits anger, hostility.

☐ 15. Other behaviour requiring care .... A15 ☐

0. Other behaviour not present.
1. Other behaviour present. (*Please specify below. If more than one example of other behaviour exists, list the most common examples.)*

☐ B. **Potential for injury to self or others.** — Presence of behaviour that places self or others at risk for psychosocial or physical injury and which requires intervention. Includes patients whose physical condition or tendency toward violence contributes to the risk. Intervention is aimed at reducing or removing risk. .... B ☐

(If there is not an active treatment plan for this behavioural problem, a "0" should be coded.)

0. No intervention required.
1. General observation and intermittent intervention required less frequently than every hour.
2. Close observation and intermittent intervention required hourly or more often but less often than every 15 minutes.
3. Close and constant intervention required every 15 minutes or more often.

☐ C. **Ineffective coping** — Presence of behaviour that reflects inability to deal appropriately with routine living situations or with individuals and which requires intervention. Intervention is aimed at altering ability to cope. .... C ☐

(If there is not an active treatment plan for this behavioural problem, a "0" should be coded.)

0. No intervention required.
1. Intervention required, totalling less than 30 minutes over a 24-hour period.
2. Intervention required totalling from 30 minutes up to, but not including, 2 hours over a 24-hour period.
3. Intense intervention required, totalling 2 hours or more over a 24-hour period.

☐ D. **OT Rehabilitation in BDL domain** — Type of Occupational Therapy (OT) patient is receiving for problems with any BDLs. .... D ☐

0. Is not on any OT program (but OT rehabilitation programs are available in this facility and patient may get PRN assistance).
1. Receives OT consultation and/or monitoring only.
2. Is on low maintenance OT program.
3. Is on high maintenance OT program.
4. Is on restorative OT program.
8. No appropriate OT rehabilitation programs are available in this facility.

☐ E. **PT Rehabilitation in BDL domain** — Type of Physical Therapy (PT) program patient is receiving for problems with any BDLs. .... E ☐

0. Is not on any PT program (but PT rehabilitation programs are available in this facility and patient may get PRN assistance).
1. Receives PT consultation and/or monitoring only.
2. Is on low maintenance PT program.
3. Is on high maintenance PT program.
4. Is on restorative PT program.
8. No appropriate PT rehabilitation programs are available in this facility.

V. CONTINUING CARE LEVEL (CCL)

☐ **A.** **Urinary** **Continence/Catheter Care** — Any inappropriate voiding causing hygienic or health risk. .... A ☐

0. None.
1. No incontinence but requires routine catheter care, or occasional incontinence.
2. Incontinence requiring management procedures.
3. Incontinence requiring bladder retraining.

☐ **B.** **Fecal** **Continence/Ostomy Care** — Any inappropriate bowel elimination causing hygienic or health risk .... B ☐

0. None.
1. No incontinence but requires routine ostomy care, or occasional incontinence.
2. Incontinence requiring management procedures.
3. Incontinence requiring bowel retraining.

☐ **C.** **Medications** — Number refers to the number of different drugs, not the number of doses. C

1. Number of scheduled medications **ordered** for preceding 24-hour period .... 1 ☐☐
2. Number of scheduled medications **taken** during preceding 24-hour period .... 2 ☐☐
3. Number of PRN medications **ordered** (include all types) .... 3 ☐☐
4. Number of PRN medications **taken** during preceding 24-hour period .... 4 ☐☐
5. **TOTAL** number of medications **taken** during preceding 24-hour period .... 5 ☐☐
   (total of #2 and #4 above)

☐ **D.** **Communication** — (Verbal or non-verbal) .... D ☐

0. Communication is unimpaired.
1. Patient has difficulty communicating to others but understands others' speech or gestures.
2. Patient has difficulty understanding others but can communicate to them without difficulty.
3. Patient has impaired ability to communicate to others and to understand others' communication.

If D is "0", i.e. patients' communication is unimpaired, leave the boxes blank for the items below.
If D is 1, 2 or 3: Indicate the source(s) of the communication problem by coding the items below.

Physical impairment .... ☐
0. No
1. Yes

Language barrier .... ☐
0. No
1. Yes

Other .... ☐
0. No
1. Yes (*please specify below*)

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☐ VI. THERAPEUTIC INTERVENTIONS AND PROGRAMS (TIPs)

Special treatments ordered by a physician and carried out by staff. The patient has received the following therapeutic interventions within the past 24-hours. (*Code YES only if treatment was physician ordered, unless it was given on an emergency basis.*)

Code: 0. – No
1. – Yes

IM therapy ☐

Subcutaneous injection ☐

Insulin injection on a sliding dosage ☐

Sterile dressing changes ☐

Other wound care – including decubitus ulcer care ☐

Oxygen ☐

Chest care (e.g. postural drainage, vibration, etc.) ☐

Nasal/oral suctioning ☐

Tracheostomy care ☐

Nasogastric feeding ☐

Gastrostomy feeding ☐

Parenteral fluids ☐

Other (*please specify below*) ☐

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

VII. EXTERNAL DEMAND LEVEL (EDL)

Factors external to the patient that alter the individual's level of dependency or the care required from staff. Family participation in care – Behaviour of family or friends that alters the patient's need for attention from staff.

A

☐ **A.** **Family provision of assistance to patient** ☐

1. Family never provides assistance or support or patient has no family.
2. Family provides physical assistance or social support less than weekly.
3. Family provides physical assistance or social support at least weekly but not daily.
4. Family provides physical assistance or social support daily.

B

☐ **B.** **Family need for assistance from staff** ☐

1. Family never requires assistance or support from staff or patient has no family.
2. Family requires assistance or support from staff less than weekly.
3. Family requires assistance or support from staff at least weekly but not daily.
4. Family requires assistance or support from staff daily.

	YEAR	MONTH	DAY
Date of classification	☐☐☐☐	☐☐	☐☐

Classifier code ☐☐☐☐☐

Alberta Patient Classification System for Long Term Care Facilities

Instructions for Completing the Patient Classification Form

June, 1988

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GENERAL INSTRUCTIONS

1. **Using These Instructions**—These instructions should be read before completing the Patient Classification Form (PCF) and should be kept with the PCFs as they are being completed. **Frequent reference to the instructions will be needed to complete the PCF accurately.**
2. **Patient Classification Form Items**—In addition to the eight indicators used to classify residents, the PCF includes items to be used to monitor changes in the long term care population that could affect the validity of the classification system. The information from these additional items can also be used for policy/planning purposes.
3. **Time Period**—All items refer to the **current status of the resident** unless stated otherwise. Current status generally refers to the most recent 24-hour period. Because documentation may not be done on a daily basis, the medical record should be reviewed for the *past month* for documentation of the presence of a problem or condition. In some cases, confirmation of current status may be required. This should be done by consulting with the nurse in charge.
4. **Level of Functioning Qualifying Information**—Some items or activities occur more than once a day and performance of the activity may vary over the 24-hour period (e.g. toileting). The level of functioning and/or the level of assistance required should be recorded according to the period specified in the item's instructions. If no time period is specified, record the resident's average requirements during the day time.
5. **Determining Levels of Functioning**—Unless otherwise noted, all items should be coded according to the resident's *requirements for care* as documented in the resident's care plan or health care record.
6. **Source of Information**—The medical record and/or nursing care plan are the first sources of information for all PCF items. Written documentation of a problem, condition or required treatment is necessary in order to be acknowledged on the PCF as present.
7. **Verification**—After the resident's record is reviewed, it may be necessary to verify the information with the nurse responsible for the resident on the day the resident is classified. For selected items, the occupational or physical therapist responsible for rehabilitation therapy will also have to be interviewed. This will provide a second check on the data and confirm the accuracy of the information for the current day. If the nurse or therapist does not have up-to-date information on the resident, *it is his/her responsibility* to obtain the information from other staff and report it to the classifier.
8. **Nurse/Therapist Interviews**—It is extremely important to ensure that interviews for verification do not change the status of the resident more than can be supported by documentation. Specific instructions provided in the classifiers' training session are to be used to guide interview questions.
   - The classifier must *only* use the wording provided in each item/indicator description. Descriptions must not be reworded and further explanations must not be provided to the nurse or therapist.
   - If the nurse or therapist does not understand the item, the classifier should repeat the item, exactly as written.
   - The classifiers may use "neutral probes" such as reflective sentences, at any time in interviewing.
   - If the nurse or therapist describes the resident as being at a different level of functioning from that recorded in the medical record or nursing care plan, the classifier should use the most current information on required care to code the indicator. At the same time, there must be supporting documentation of the problem, and the verification should be used *only to update documented information.*
   - If the nurse or therapist indicates a level of functioning for which there is no evidence of a problem in the medical record, the classifier must use judgment in coding the response. This would only occur in rare cases, e.g. a change in resident status in the past 24 hours that has not yet been documented.
9. **Confidentiality**—Individual resident information collected on the PCF will be kept confidential within the Department of Hospitals and Medical Care and will not be released outside the Department.

10. **How to Code Responses**—Code all items by writing the score of the selected response in the box on the right hand side of the page. If the item/indicator will require verification by interview with a nurse or therapist, place a check mark in the box on the left hand side of the page opposite the indicator. Please PRINT all information as clearly as possible, being sure to distinguish between "4s" and "9s" and "1s" and "7s" (underline 9s and cross 7s).
11. **Returning PCFs**—All PCFs should be packaged in bundles according to the facility in which the classifications were completed. The packages should be labelled with the facility name and code number, classifier name and code number and the number of completed or uncompleted PCFs in the package. These packages should be returned once a week or when the classifier is finished at that facility (whichever comes first), to:

    Patient Classification Coordinator
    Alberta Hospitals and Medical Care
    Long Term Care Services Unit
    Hys Centre
    11010 – 101 Street
    Edmonton, Alberta T5J 2P4

    Any unused PCFs should be labelled "unused" and also packaged and returned to the above address. Any ruined PCFs should have an "X" drawn across the cover page and page 1 from corner to corner, and again be packaged and returned to the address noted above. NO PCFS, EITHER COMPLETED OR UNUSED, SHOULD REMAIN IN FACILITIES.

SPECIFIC INSTRUCTIONS

I. Background Data

1. **Resident AHCIP Number:** This identification number is needed to track residents within the Alberta health care system.
2. **Facility Code Number:** Use the unique code number assigned by Alberta Hospitals and Medical Care to each facility, as it appears on the facility's list of residents.
3. **Unit Number:** Use the code assigned by Alberta Hospitals and Medical Care for the unit the resident lives in, as it appears on the facility's list of residents. Fill in the code by beginning with the box under "Unit Number" which is the farthest to the *left*, i.e. if there are fewer than five characters in the unit number (e.g. "W5"), the empty boxes should be those on the right. E.g.:

W	5			

4. **Resident Chart Number:** Enter the unique number (admission number) assigned by the facility to identify each resident. As in coding the unit number, fill in the code for resident chart number by beginning with the box farthest to the *left*, so that if there are any empty boxes under this item, they are those boxes on the right. E.g.:

5	6	7	8	9						

5. **Date of Current Admission:** Enter the most recent year, month and day the resident entered the present facility. Record the latest date of readmission even if the resident was returning following a brief discharge to another facility (i.e. if his/her bed was *not* held for him/her). Note: all coding sections (boxes) must be filled in for this item (i.e. if the month or day is between one and nine, it should be coded 01, 02, etc. as opposed to 1, 2, etc.).
6. **Date of Birth:** Enter the resident's year, month and day of birth in that order. Note: all coding sections (boxes) must be filled in (i.e. if the month or day is between one and nine, it should be coded 01, 02, etc. as opposed to 1, 2, etc.).
7. **Sex:** Enter a "1" for male or "2" for female.
8. **Resident Status:** If anything other than a "0" is coded for this item, the classifier should not complete any other PCF items for that resident except for the classifier code number and date of classification on the last page of the PCF. The PCF for that resident should be submitted with the other PCFs from that facility, but with only the Background Data up to "Resident Status," classifier code and classification date completed.

    A "1" should be coded only if the resident's chart is not on the facility premises and cannot be retrieved before the classifier leaves that facility (i.e. resident is receiving treatment at the Cross Cancer Institute on the day of classification) or if the resident is not present in the facility and has been absent for more than 24 hours (i.e. is on a leave of absence or has been temporarily transferred).

A "3" should be coded if the resident has been discharged since he/she was last classified, to another nursing home, auxiliary hospital (including nursing home/auxiliary hospital beds in acute care facilities) or an extended care centre (Claresholm, Raymond or Rosehaven). Classifiers should check their provincial listing of nursing homes and auxiliary hospitals if they are unsure whether an institution should be designated as a long-term care facility.

A "4" should be coded if the resident has been discharged to an active treatment facility, including the mental health hospitals (Alberta Hospital Ponoka, Alberta Hospital Edmonton).

A "6" should be coded only if the descriptions in 0 – 5 do not apply to the resident. If a "6" is coded in the appropriate box for this item, a description of the resident's status should be printed on the line provided.

9. **Current Marital Status:** Record a 1, 2 or 3 as appropriate to reflect the resident's current marital status.

10. **Language:** Code all three items under "language." If the resident's preferred language is other than the five languages listed, record a "6" in the code box for "preferred language" and print the appropriate language in the area provided. If the name of this other preferred language has more than 12 letters, remove the vowels beginning at the second letter in this name until it is reduced to 12 characters (e.g. Czechoslovakian would become CZCHSLVAKIAN).

II. Health Status

A. Current Medical Diagnoses

Using the ICD–9 code numbers on the following pages, list by disease category *all current active diagnoses* that appear in the resident's medical record. Write in the diagnosis(es) on the appropriate line *and* record the ICD–9 code in the boxes provided. More than one diagnosis may be recorded per disease category by using both columns for ICD–9 codes beside the appropriate category or if there are more than two diagnoses in one diagnostic category, by using the space provided on the PCF at the bottom of the disease category list (under "other").

If a diagnostic code is not listed or if the appropriate code is not clear from the resident's record, use the "other" designation for the specific disease category (e.g. "other circulatory diseases"..."002"). For each diagnosis, code whether the diagnosis was made less than six months ago (code "1") or six months or more ago (code "2"). If a resident has been in the facility for less than six months and it is unclear when a particular diagnosis was made, code "1" for less than six months ago. Examples of common diagnoses from each disease category are listed on the following pages.

	ICD-9 Code Numbers
Blood and Blood-Forming Organ Disorders	
Anemia	285
Other blood disorders	001
Circulatory Diseases	
Angina pectoris	413
Arteriosclerosis, generalized	440
Arteriosclerotic cardiovascular diseases (ASCVD)	429
Arteriosclerotic heart disease (ASHD)	414
Cardiac dysrhythmias, unspecified	427
Chronic ischemic heart disease	414
Congestive heart failure with acute pulmonary edema	428
Hypertension, essential	401
Hypertensive heart disease	402
Peripheral vascular disease	443
Other circulatory diseases	002
Digestive Disorders	
Esophogeal diseases	530
GI ulcers	534
Gastroenteritis or colitis	558
Chronic liver disease, cirrhosis	571
Pancreatic disease	577
Chronic renal failure	585
Kidney infections	590
Other disorders of digestion and excretion	003
Endocrine and Metabolic Disorders	
Diabetes, non-insulin dependent	250
Diabetes, insulin dependent	250
Hypothyroidism	244
Fluid electrolyte imbalance or disorder	276
Other endocrine and metabolic disorders	004
Genitourinary Disorders	
Urinary tract infection, site not specified	599
Other genitourinary disorders	005
Mental Problems	
Alcoholism, chronic	303
Alzheimer's disease	331
Arteriosclerotic dementia	290
Chronic organic brain syndrome	294
Depression	311
Mental disorder (non-psychotic) following organic brain damage	310
Mental retardation	319
Organic personality syndrome	310
Presenile dementia	290
Psychosis	298
Schizophrenia	295
Senile dementia	290
Senility without psychosis	797
Other mental problems	006

Musculoskeletal Disability

Arthritis, excluding osteoarthrosis	716
Degeneration of intervertebral, cervical, thoracic or lumbar disc	722
Fracture, head of femur	820
Fracture, other unspecified parts of femur	821
Fracture, humerus	812
Fracture, radius and ulna	813
Fracture, vertebra	805
Hip fracture, NOS	820
Osteoarthritis, generalized	715
Osteoarthritis, unspecified whether generalized or localized	715
Osteoporosis	733
Rheumatoid arthritis	714
Traumatic amputation of leg, late effect	905
Other musculoskeletal disorders	007

Neoplasms

Carcinoma of female breast	174
Carcinoma of colon	153
Carcinoma of lung	162
Carcinomatosis, generalized cancer	199
Other neoplasms	008

Neurological Motor Dysfunction

Cerebral arteriosclerosis	437
Cerebral degeneration, unspecified	331
Cerebral infarction	434
Cerebral palsy	343
Cerebral thrombosis	434
Cerebrovascular accident, acute phase	436
Cerebrovascular accident, late effects	438
Convulsions	780
Hemiplegia	342
Huntington's choreae	333
Multiple sclerosis	340
Paraplegia	344
Parkinson's disease	332
Quadriplegia	344
Transient ischemic attacks (TIAs)	435
Other neurological dysfunction	009

Pulmonary Disease

Chronic obstructive pulmonary disease (COPD)	496
Emphysema	492
Pneumonia, organism unspecified	486
Upper-respiratory infection, acute	465
Other pulmonary disease	010

Sensory Disorders

Blindness and low vision	369
Cataract	366
Glaucoma, unspecified	365
Hearing loss	389
Other sensory disorders	011

Skin Disorders

Chronic skin ulcer	707
Decubitus ulcer	707
Other skin disorders	012

B. Medical Condition

For a YES to be coded for either of the two medical condition items, all of the following must be true:

- Condition must currently exist.
- Written support as to *cause* and *treatment plan* must appear in medical record.
- See definitions below. Examples are for clarification and are not intended to be all inclusive.

If written documentation is not available, code a "0" for these conditions.

Medical Condition Definitions

Comatose: Unconsciousness, cannot be aroused, and at most can respond only to powerful stimuli (e.g. brain insult, hepatic encephalopathy or cardiovascular accident).

Terminally Ill: Professional prognosis (judgment) is that resident is rapidly deteriorating and will likely die within a year (e.g. end stage carcinoma, renal disease, cardiac disease or those residents receiving palliative care).

C. Memory and Orientation

These items refer to behaviour exhibited by residents in the facility and observed by staff. To complete the items on *orientation to environment* and *recognition of staff*, consult the nurse in charge. (Note that the resident is expected to find his/her way around only those areas of the facility to which he/she has routine access.)

To complete the item on *ability to remember instructions,* first consult the facility's occupational or physical therapist since this is a routine part of his/her assessment. If no rehabilitation services are available in the facility ask the nurse in charge for the information. For this item, the resident should receive the lowest applicable score (e.g. if 0, 1, 2 and 3 all apply to an individual, a "0" should be coded). The emphasis in this item is on the resident's *memory*. Repetition of sentences can be done verbally or using other communication methods such as sign language or a language board. If it is not possible to determine an individual's score on this item due to a language barrier, code an "8" for "not applicable".

D. Special Programs

These are programs providing specialized services which are *approved* by the Department of Hospitals and Medical Care and defined as follows:

Mentally Dysfunctioning Elderly: An approved program with designated beds that provides specialized services to individuals with moderate to severe dementia with associated problem behaviours, with or without major physical care requirements.

Young Physically Handicapped: An approved program with designated beds that provides specialized services to adults mostly between 18 and 45 years of age who have a physical disability which is chronic in nature and which interferes with ADL functioning. These services are intended to maximize the resident's potential, with the ultimate goal of reintegration into the community.

Other: Any other approved programs with designated beds and/or those approved programs without designated beds (e.g. day hospital).

Note: *Read the PCF instructions carefully for this item.* Use box labelled D1A if the resident does not participate in (code an "8") or participates in only one, approved program. *Use box D1B only if the resident participates in more than one approved program.* If the resident participates in an approved program other than mentally dysfunctioning elderly or young physically handicapped, a score of "3" should be coded in either box D1A or D1B as per instructions above, and the program(s) should also be specified in the section provided.

III. Activities of Daily Living

In arriving at the ADL indicator scores, determine how the resident completed each ADL on the day of classification. Specific instructions for dealing with variability of performance during the 24–hour period are listed below for each indicator.

A. Definitions

The following terms are used in the ADL indicators:

Supervision: Verbal encouragement and observation, not physical hands-on care.

Assistance: Physical hands-on care.

Intermittent: Staff person does not have to be present during the entire activity, nor does the help have to be on a one-to-one basis.

Constant: One-to-one care requiring a staff person to be present during the entire activity, otherwise the activity will not be completed by the resident.

Note how these terms are used together in the ADLs. For example, there is intermittent supervision and intermittent assistance.

B. Clarification of ADL Responses

Eating: Level of functioning for *most of the meal times during the daytime.*

The resident may require a staff person's continual presence and help because the resident tends to choke, has a swallowing problem, is learning to feed self, or is quite confused and forgets to eat.

Toileting: Level of resident's functioning *during the daytime.*

If the resident has both an indwelling catheter and an ostomy or uses incontinence products (e.g. pads or diapers such as "Attends") and is not taken to the toilet, code "8". Incontinent resident is described under Continuing Care Level, Section V of the PCF.

Transferring: *Highest level* of assistance required during 24-hour period.

Exclude transfers to bath and toilet. Also exclude positioning and turning. To justify coding "4", there must be a logical medical reason why the resident needs the help of two people to transfer. For example, two people may be required because the resident is obese, has contractures, has fractures (or stress fracture potential), or has attached equipment that makes transferring difficult (for example, tubes). A two person transfer may be required for the protection of the resident and also for staff. Note that a two person transfer requires specification of whether the resident is able to bear weight (4.1) or not (4.2) (code a "1" or "2" in the box labelled C4).

Dressing: Level of assistance required to dress *for the first time during the day.*

If the resident is ill in bed and clothed only in gowns and pajamas, code "8".

C. Rehabilitation for ADL Domain

The goal of the program as documented in the medical record should be used to identify the type of program the resident is on. Be sure to check with the occupational and physical therapists in the facility if there is no documentation in the record.

Definitions

Consult: A requested assessment for a specific problem that can be resolved without the resident being on a regularly scheduled intervention or treatment.

Monitor: A scheduled intervention to check or monitor the ongoing status of the resident.

Low Maintenance: The goal is to ensure that the resident remains at the optimal functional level allowed by the disease process with minimal or decreasing intervention. This resident is at a plateau.

High Maintenance: The goal is to provide a continuing program of therapy which will:

- Maintain physical and mental status at optimum levels,
- Ensure continuing comfort (pain management),
- Maintain a therapeutic environment for optimal resident functioning.

Restoration: Goal is to improve optimal functional level within a specified time frame or to achieve possible discharge.

IV. Behaviours of Daily Living

To complete the BDL items, it will be necessary to check with the nurse in charge. For any BDL to qualify as present, a statement of planned intervention for the identified behavioural problem must be documented on the care plan.

A. Definitions

The terms used on the PCF should be interpreted only as they are defined below.

Unpredictable Behaviour: Staff cannot foretell when (that is, under what circumstances) the resident will exhibit the behavioural problem. There is no evident pattern.

Predictable Behaviour: Based on observations and experiences with the resident, the staff can discern and plan in advance when a resident will exhibit a behavioural problem. The behavioural problem may occur during activities of daily living (for example, bathing), specific treatments (for example, contracture care, ambulation exercises) or for a logical reason, such as being wrongly criticized, bumped into, etc.

Supervision: Verbal encouragement and observation, not physical hands-on care.

Assistance: Physical hands-on care.

Intervention: Any physical, nursing, medical, or pharmacological interventions aimed at limiting, controlling, or eliminating behavioural problems. Interventions can include restraint (physical or chemical), redirection, behaviour modification or retraining, or social interventions.

Intermittent: Periodic, non-constant, or occasional behavioural interventions.

Constant: Interventions requiring ongoing monitoring or presence of staff member, such as constant restraints, behaviour modification or drug therapy.

B. Clarification of BDL Responses

The 15 examples of behaviour (IV.A) are intended to provide data on the specific behaviours that the resident exhibits. They are not an exhaustive list. If other problem behaviours requiring intervention are present they should be noted under "other" (IV.A.15). For example, manipulative behaviour could be included by coding a "1" in box A15 next to the "other" behaviour item and then printing a description of the behaviour in the space provided under this item. If the resident does not exhibit any "other behaviour requiring care," code a "0" in box A15 (*do not leave this box blank).*

Reviewing these specific examples should aid the classifier in determining the appropriate level of care required on the two BDL classification indicators (*potential for injury to self and others* and *ineffective coping*) even though there is no *direct formula* for translating presence of specific behaviour into these care requirements. If the resident exhibits more than one behaviour, use the behaviour requiring the *most* intense intervention to determine the level of intervention to code under the appropriate BDL indicator.

The BDL classification indicators, *potential for injury to self and others (IV.B)* and *ineffective coping* (IV.C), are intended to reflect the amount of care the resident requires to control the behaviour in question. *Record the need for intervention during the 24-hour period whether or not the behaviour occurs* (i.e. if intervention is actually preventing the behaviour and continues to be necessary to prevent the behaviour, it should be recorded). Be alert to the tendency for staff to regard chronic behaviour patterns as "normal".

Potential for Injury to Self and Others

Three types of behaviour which require intervention are included:

- Behaviour that carries risk of injury to the resident,
- Behaviour that has a risk of provoking others to violence and thereby injuring the resident,
- Violent behaviour that is directed toward others and places them at risk for injury.

The resident may engage in these types of behaviour without conscious awareness of the risk involved. Physical conditions that put a resident at risk should be included. For example, a resident at high risk for seizures may need to be monitored and/or accompanied when not on the unit. ***Note***: "Observation" does not need to be done one on one, i.e. staff can be observing more than one resident simultaneously.

Ineffective Coping

Residents who do not cope effectively are usually aware of their actions and have the capacity to change their behaviour. However, their physical conditions may make them emotionally labile as in the case of multiple sclerosis residents. Depressed and withdrawn residents are also included here. The times given with the descriptors under this indicator are cumulative over a 24–hour period. Intervention for ineffective coping tends to be unpredictable, rather than on a routine schedule (as opposed to potential for injury which may require a more regular routine schedule of observation/intervention).

C. Rehabilitation for BDL Domain

The goal of the program as documented in the medical record should be used to identify the type of program the resident is on. Be sure to check with the occupational and physical therapists in the facility if there is no documentation in the record.

Definitions

Consult: A requested assessment for a specific problem that can be resolved without the resident being on a regularly scheduled intervention or treatment.

Monitor: A scheduled intervention to check or monitor the ongoing status of the resident.

Low Maintenance: The goal is to ensure that the resident remains at the optimal functional level allowed by the disease process with minimal or decreasing intervention. This resident is at a plateau.

High Maintenance: The goal is to provide a continuing program of therapy which will:

- Maintain physical and mental status at optimum levels,
- Ensure continuing comfort (pain management),
- Maintain a therapeutic environment for optimal resident functioning.

Restoration: Goal is to improve optimal functional level within a specified time frame or to achieve possible discharge.

V. Continuing Care Level

Note: For the two continence indicators, if a resident is continent due to management procedures currently being used or because he/she is on a retraining program (and would be incontinent without the procedures/ program), code a "2" or "3" on the indicator as appropriate.

A. Urinary Continence

Catheter Care: Refers to insertion and maintenance of a catheter and cleansing and inspection of the perineal area to avoid infection and skin breakdown.

Management Procedures: Refers to the use of bladder management programs to avoid incontinent episodes (e.g. scheduled toileting, habit toileting and intermittent catheterization).

Retraining: Refers to the teaching and supervision of self-catheterization and programs that are used to restore a normal pattern of voiding and continence by progressive lengthening or shortening of toileting intervals, with a variety of adjunctive techniques (e.g. exercises to strengthen the muscles of the pelvic floor; providing instructions or techniques to help empty the bladder completely). Resident must be cognitively alert to participate in a retraining program.

B. Fecal Continence:

Management Procedures: Refers to the use of bowel management programs to avoid incontinent episodes (e.g. toileting at a regular time after meals when stimuli from hot beverages or food will trigger defecation). Does not include routine ostomy care.

Retraining: Refers to programs of toileting used to restore a normal pattern of bowel continence, and the teaching and supervision of ostomy care. Resident must be cognitively alert to participate in a retraining program.

C. Medications

All medications, regardless of route of administration, should be counted. Includes oral, subcutaneous, IM and IV drugs.

Scheduled medications are those given on a predetermined schedule. PRN medications are those given at the nurse's discretion only when the resident requires them.

Note that "number of medications" refers to the number of *different* drugs that are currently prescribed, *not* the number of doses ordered.

Note also that all coding boxes must be filled in (e.g. if a resident took two scheduled medications during the preceding 24-hour period, this should be coded **"02"** as opposed to "2").

1. Record number of scheduled medications currently **ordered.**
2. Record number of scheduled medications **taken** during preceding 24–hour period.
3. Record number of PRN medications currently **ordered**.
4. Record number of PRN medications **taken** during preceding 24–hour period.
5. Record total number of medications **taken** during preceding 24–hour period (PRN and scheduled).

Note: If a drug is ordered on a schedule *and* PRN, count the drug as *both* scheduled and PRN if different purposes are identified. If different purposes are not identified, count the drug *only* as scheduled.

D. Communication (Verbal or Non-Verbal)

Communication refers to the resident's ability to exchange verbal and non-verbal information. If there is no communication impairment (i.e., if a "0" was coded for this item), leave the next three coding boxes blank. If there is some communication impairment (i.e. if a 1, 2 or 3 was coded for this item), code the three sub-items under the main communication item (the three unlabelled boxes under the box labelled "D" beside the communication item). If there is impairment, note the source(s) of the communication problem (physical impairment, language barrier, or other). *All three boxes* must be completed if there is some impairment with either a "0" if the sub-item does not give the source of the communication problem or a "1" if it does give the cause of the impairment. Note that if the cause is other than physical impairment or language barrier, a "1" must be coded in the box to the right of "other" *and* the cause must be specified in the space provided under this item (e.g., Alzheimer's).

VI. Therapeutic Interventions and Programs

1. Treatment must be current and should be provided by regular staff who ordinarily are employed by the facility but may be hired on a contractual basis.
2. A physician order must be *written,* specifying the cause/need for this treatment and the frequency. If the treatment (e.g. suctioning) was given on an emergency basis during the 24-hour period covered by the classification, the treatment may be counted even if no written order is on the resident's chart.
3. Treatments must be given at least once a day and within the past 24 hours.
4. Code a "0" if the treatment is not given at least once a day and a "1" if it is; *do not leave any boxes blank.*

Definitions

IM Therapy: Intra muscular injection of medication.
Subcutaneous Injection: Any subcutaneous injection including Insulin injections *not* on a sliding scale.
Insulin Injection on a sliding dosage: The amount of Insulin to be administered is determined by the level of sugar in the resident's blood or urine on a test performed prior to the administration of the Insulin.
Sterile Dressing Changes: Use of aseptic technique to change the dressing on any type of wound.
Other Wound Care: Care of subcutaneous lesions resulting from surgery, trauma or open ulcers. Includes dressing changes debridement, use of ultra violet light and other special treatments to facilitate wound healing.
Oxygen: Administration per nasal cannula, mask, hood or artificial airway.
Chest Care: Includes nebulizations, delivery of aerosol medication, postural drainage, percussion, vibration, and assisted coughing and deep breathing.
Nasal/Oral Suctioning: Removal of secretions from airway and pharynx on routine basis. May be done after percussion.
Tracheostomy Care: Includes removal and cleansing of tracheostomy, cannula and suctioning to maintain a patent airway.
Nasogastric (Tube) Feeding: Administration of oral feedings and medications through nasal-gastric and oral-gastric tubes to maintain nutritional status.
Gastrostomy (Tube) Feeding: Administration of feeding through a tube inserted directly into the stomach.
Parenteral Fluids: Routine administration of IV fluids. Inspection and maintenance of IV or central line.

Other: If other therapeutic interventions/programs are being received by the resident on a daily basis, a "1" should be coded beside "other" *and* the treatment should be specified under this item. If not, a "0" should be coded beside this item (*do not leave the box blank*).

VII. External Demand Level

Family Participation in Care: These items refer to any behaviour of the resident's family or friends that either increases or decreases the resident's or the family's or friends' need for care/assistance. This includes any behaviour that alters the resident's need for assistance from staff by decreasing the resident's demands on staff or by increasing the family's demands on staff.

Date of Classification: Record the date on which the Patient Classification Form was completed for that particular resident. Note: all coding sections (boxes) must be filled in for this item (i.e. if the month or day is between one and nine, it should be coded 01, 02, etc. as opposed to 1, 2, etc.).

Classifier Code: Record the appropriate unique identifier code (a different code is assigned to each classifier). This number should be aligned to the *right* of this coding section. For example, if the code number is "00035" it should be coded

0	0	0	3	5

CORRECT

as opposed to

3	5			

WRONG

or

			3	5

WRONG

June 1988

INSTRUCTIONS FOR DETERMINING CLASSIFICATION CATEGORIES FROM THE PATIENT CLASSIFICATION FORM

In determining a patient's classification category it is important to note that only part of the information from the Patient Classification Form is used. To determine a patient's category, you will be recording a patient's scores on the following indicators from the Patient Classification Form:

- Eating (page 4, indicator III.A)
- Toileting (page 4, indicator III.B)
- Transferring (page 4, indicator III.C)
- Dressing (page 4, indicator III.D)
- Potential for injury to self or others (page 6, indicator IV.A)
- Ineffective coping (page 6, indicator IV.B)
- Urinary incontinence/catheter care (page 7, indicator V.A)
- Fecal incontinence/ostomy care (page 7, indicator V.B)

You will not need the information from the other items on the Form (e.g., background data or health status) for classification purposes; these items are used for other reasons such as tracking changes in the needs of the nursing home/auxiliary hospital population over time.

Classification categories for patients are determined using the process described on the following pages.

INSTRUCTIONS FOR DETERMINING A RESIDENT'S/PATIENT'S CLASSIFICATION CATEGORY

STEP 1: Record Resident's score from the PCF for the ADL, BDL & CCL indicators in the boxes in Section 1 of the attached worksheet.

STEP 2: Determine Resident's ADL Level of Care as follows, based on scores in Step 1. Record in ADL Box in Section II of worksheet.

_____ 1 LOW: Has no score higher than 1 on any of the four ADL indicators.

____ 2 MED LOW: Has at least one score of 2 but no scores higher than 2 on any of the four ADL indicators.

____ 3 MED: Has at least one score of 3 but no scores higher than 3 on any of the four ADL indicators.

____ 4 MED HIGH: Has a 4 or 8 on at least one ADL indicator but does not meet the requirements for "high" ADL level.

____ 5 HIGH: Must have a 4 or 8 on one of or both eating and/or dressing AND a 4 or 8 on one of or both toileting and/or transferring.

STEP 3: Determine Resident's BDL level of care as follows, based on scores in Step 1. Record in BDL Box in Section II of worksheet.

____ 1 LOW: Has a 0 or 1 on the potential for injury indicator AND a 0 on ineffective coping.

____ 2 MED: Has a 2 on the potential for injury indicator and a 0 or 1 on ineffective coping; OR a 0 or 1 on potential for injury and a 1 on ineffective coping.

_____ 3 HIGH: Has a 3 on the potential for injury indicator and a 0 or 1 on ineffective coping; OR a 0, 1 or 2 on potential for injury and a 2 on ineffective coping.

_____ 4 V. HIGH: Has a 3 on the potential for injury indicator and a 2 on ineffective coping; OR any score on potential for injury and a 3 on ineffective coping.

STEP 4: Determine Resident's CCL level of care as follows, based on scores in Step 1. Record in CCL Box in Section II of worksheet.

____ 0 NONE: Has a score of 0 on both incontinence indicators.

____ 1 LOW: Has a score of 1 on either or both incontinence indicators but no scores higher than 1 on either incontinence indicator.

____ 2 MED: Has a 2 or 3 on either incontinence indicator but not both incontinence indicators.

____ 3 HIGH: Has a 2 or 3 on both incontinence indicators.

STEP 5: Use the matrix on page 3 to determine Resident's classification category based on ADL, BDL and CCL levels of care (Steps 2, 3 and 4).

- Locate appropriate ADL level
- Locate appropriate BDL level
- Locate appropriate CCL level
- Record letter from the cell in the matrix in which the resident's ADL, BDL and CCL levels meet, in classification category box in Section III of worksheet.

CLASSIFICATION CATEGORY WORKSHEET

SECTION I

ADL INDICATORS

☐ Eating

☐ Toileting

☐ Transferring

☐ Dressing

BDL INDICATORS

☐ Potential for injury

☐ Ineffective Coping

CCL INDICATORS

☐ Urinary Incontinence

☐ Fecal Incontinence

SECTION II

ADL LEVEL OF CARE ☐

BDL LEVEL OF CARE ☐

CCL LEVEL OF CARE ☐

SECTION III

CLASSIFICATION CATEGORY ☐

MATRIX FOR CLASSIFYING PATIENTS
BASED ON ADL, BDL AND CCL (INCONTINENCE) LEVELS

ADL LEVEL	BDL LEVEL	CCL (INCONTINENCE) LEVEL			
		0 - NONE	1 - LOW	2 - MED.	3 - HIGH
1 - LOW	1 - LOW	A	A	A	D
	2 - MED.	B	B	B	D
	3 - HIGH	B	B	B	D
	4 - V. HIGH	C	C	C	D
2 - MED. LOW	1 - LOW	B	B	B	D
	2 - MED.	B	B	B	D
	3 - HIGH	C	C	C	D
	4 - V. HIGH	D	D	E	E
3 - MED.	1 - LOW	C	C	C	D
	2 - MED.	C	C	C	D
	3 - HIGH	D	D	E	E
	4 - V. HIGH	E	E	F	F
4 - MED. HIGH	1 - LOW	D	D	E	E
	2 - MED.	D	D	E	E
	3 - HIGH	D	D	E	E
	4 - V. HIGH	F	G	G	G
5 - HIGH	1 - LOW	E	F	F	F
	2 - MED.	E	F	F	F
	3 - HIGH	E	F	F	F
	4 - V. HIGH	G	G	G	G

N.L.C. - B.N.C.
3 3286 08348138 8